145 U.S. 241

RECORD, CASE No. 13,529.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1891.

TERM No., 346.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. CONGLE, AND RICHARD W. ELLIOTT, APPELLANTS,

vs.

CHARLES H. HARD, JOHN J. CRAWFORD, AND HENRY D. HARD.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF NEW YORK.

FILED APRIL 3, 1889.

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INDEX.

	Original.	Print.
Statement	1	1
Bill of complaint	3	1
Præcipe for subpœna	9	5
Order for subpœna, &c.	9	6
Subpœna	10	6
Marshal's return	11	6
Præcipe for appearance for defendants	12	7
Order entering appearance for defendants	12	7
Answer	13	7
Stipulation amending answer	20	11
Replication	22	12
Final decree	23	12
Evidence for complainants	25	13
Offers of evidence	26	13
Testimony of James B. Ryan	30	16
Frank A. Hall	93	56
Further offers and admissions	95	58

JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C., FEBRUARY 17, 1892.

city of Brooklyn; William R. Cougle and Richard W. Elliott, both of the city of New York, all in the State of New York, and citizens of said State, bring this their bill of complaint against Charles H. Hard, John J. Crawford, and Henry D. Hard, all of Oneida, Madison county, in the State of New York, copartners doing business under the firm name of Hard Bros. & Co. and citizens of said State; and thereupon your orators complain and say—

That heretofore and before the tenth day of May, 1881, Charles H. Dunks and James B. Ryan (one of the complainants herein), both of the city, county, and State of New York, were the true, original, and first discoverers or inventors of certain new and useful improvements in swing woven-wire bed bottoms, fully described in the letters patent hereinafter mentioned, and which had not been known or used before their said invention and which, at the time of
4 their application for a patent, as hereinafter mentioned, had not been for more than two years in public use or on sale.

And your orators on information and belief further show unto your honors that said Charles H. Dunks and James B. Ryan, being so as aforesaid the first inventors and discoverers of said improvements, and being also citizens of the United States, did, on the 10th day of May, 1881, upon due application therefor, obtain letters patent of the United States for said invention in due form of law under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents of the United States, bearing date the day and year last aforesaid, and numbered No. 241,321, whereby there was granted and secured to said Charles H. Dunks and James B. Ryan, their heirs, administrators, assigns, or intended so to be, for the term of seventeen years from and after the date of said letters patent the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said invention and improvements as set forth in said letters patent, which are now remaining on record in the Patent Office of the United States, and by virtue whereof said Charles H. Dunks and James B. Ryan became and were declared the sole owners of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent, as by said letters patent or a duly certified copy thereof, here in court to be produced, will fully and at large appear.

And your orators further show unto your honors that by virtue of assignments in writing, duly entered of record in the United States Patent Office, your orators are now, were then, and have been since the acts and doings herein complained of the full, sole, and exclusive owners of the said invention of the said Charles H. Dunks and James B. Ryan and the letters patent therefor, No. 241,321, in and for the territory known as the Middle and Eastern States of the United States, as by said assignments or duly authenticated
5 copies thereof, here in court to be produced, will more fully and at large appear.

And your orators further show unto your honors that by virtue of the premises the entire title to the aforenamed letters patent in and throughout said territory have been transmitted to your orators,

who thereby became and now are the sole and exclusive owners for said territory of said swing woven-wire bed bottoms under the aforesaid letters patent and as well the letters patent and the inventions and improvements described therein and of all the rights and privileges granted and secured or intended to be granted and secured thereby, and that since they became the owners thereof as aforesaid they have invested and expended large sums of money and have been to great trouble in and about said invention and for the purpose of carrying on the business of wholesale manufacturers of swing woven-wire bed bottoms under said letters patent and making the same profitable to themselves and useful to the public, and that said invention has been and is of great benefit and advantage, and that the woven-wire bed bottoms were made according to said invention and sold by your orators to the great advantage of the public, and that the public have generally acknowledged and acquiesced in the aforesaid rights of your orators, and your orators believe that they will realize and receive large gains and profits therefrom if infringements by said defendants and their confederates shall be prevented.

Yet the said defendants, well knowing the premises and the rights secured to your orators aforesaid, but contriving to injure your orators and to deprive them of the benefits and advantages which might and otherwise would accrue unto them from said invention, on and about the 25th day of February, 1887, and theretofore and after the issuing of the said letters patent as aforesaid and before the commencement of this suit, did, as your orators are credibly informed and believe, without the license or allow-
6 ance and against the will of your orators and in violation of their rights and in infringement of the aforesaid letters patent, within said territory, unlawfully and wrongfully and in defiance of the rights of your orators, make, construct, use, and vend to others to be used the said invention, and did make, construct, use, and vend to others to be used within the northern and southern districts of New York and elsewhere within said territory woven-wire bed bottoms made according to and employing and containing said invention, and that defendants still continue so to do, and that they persist in threatening to make the aforesaid woven-wire bed bottoms containing said inventions in large quantities and to supply the market therewith and to sell the same within the said districts and elsewhere within said territory—

All in defiance of the rights acquired by and secured to your orators as aforesaid and to their great and irreparable loss and injury, and by which they have been and still are being deprived of great gains and profits which they might and otherwise would have obtained, but which have been received and enjoyed and are being received and enjoyed by the said defendants by and through their aforesaid unlawful acts and doings.

And your orators further show unto your honors on information and belief that said defendants have sold large quantities of said woven-wire bed bottoms containing said invention and have a large quantity on hand which they are offering for sale and have made

and realized large profits and advantages therefrom, but to what extent and how much exactly your orators do not know, and pray a discovery thereof; and your orators say that the use of the said invention by said defendants and their preparation for and avowed determination to continue the same and their other aforesaid unlawful acts in disregard and defiance of the rights of your orators have the effect to and do encourage and induce others to venture to infringe said patent in disregard of your orators' rights.

7 And your orators further show unto your honors that they have caused notice to be given to said defendants of said infringements and of the rights of your orators in the premises and requested defendants to desist and refrain therefrom, but they have disregarded said notice and refused to desist from said infringements and still continue to make and sell said woven-wire bed bottoms containing said invention.

And forasmuch as your orators can have no adequate relief except in this court, to the end, therefore, that the said defendants may, if they can, show why your orators should not have the relief hereby prayed and may, upon their several and respective corporate oaths, according to their best and utmost knowledge, remembrance, information, and belief, full, true, direct, and perfect answers make to the premises and to all the several matters hereinbefore stated and charged as fully and particularly as if severally and separately interrogated as to each and every of said matters, and may be compelled to account for and pay to your orators the profits by defendants acquired and to be acquired and the damages suffered by your orators from the aforesaid unlawful acts—

And your orators pray that said defendants, Charles H. Hard, John J. Crawford, and Henry D. Hard, their servants, agents, attorneys, and workmen, and each and every of them, may be restrained and enjoined provisionally and perpetually by the order and injunction of this honorable court from directly or indirectly making, constructing, using, vending, delivering, working, or putting into practice, operation, or use, or in anywise counterfeiting or imitating the said invention or any part thereof or any woven-wire bed bottoms, bed frames, or mattresses containing the improvements and inventions or any of them secured as aforesaid to your orators or any material part thereof made in accordance therewith or like or similar to those which they have under said letters patent heretofore made, and that the said defendants may be decreed to pay the costs of this suit, and that your orators may have such further re-

8 lief or such other relief as to this honorable court shall seem meet and as shall be agreeable to equity.

May it please your honors to grant unto your orators the writ of injunction, as well provisional as perpetual, issuing out of and under the seal of this honorable court, commanding, enjoining, and restraining the said defendants, Charles H. Hard, John J. Crawford, and Henry D. Hard, and their servants, agents, attorneys, and workmen, and each and every of them, as is hereinbefore in that behalf prayed.

May it please your honors to grant unto your orators the writ of

subpœna issuing out of and under the seal of this honorable court, directed to the said defendants, Charles H. Hard, John J. Crawford, and Henry D. Hard, commanding them by a certain day and under a certain penalty to be and appear in this honorable court, then and there to answer the premisses, and to stand to and abide such order and decree as may be made against them.

And your orators will ever pray, &c.

JAMES B. RYAN.
FRANCIS A. HALL.

LEONARD B. SUTRO,
Complainants' Solicitor.
LEONARD B. SUTRO,
Solicitor and of Counsel for Complainants,
59 Liberty Street, New York City, N. Y.

UNITED STATES OF AMERICA, *Southern District of New York,* } *ss:*

On this 6th day of April, 1887, before me personally appeared James B. Ryan and Francis A. Hall, two of the above-named complainants, who, being by me severally duly sworn, does each for himself depose and say that he has read the foregoing bill of complaint subscribed by him and knows the contents thereof, and that the same is true of his own knowledge except as to the matters therein stated on information and belief, and as to these matters he believes it to be true.

[SEAL OF COMMISSIONER.] JOHN A. SHIELDS,
U. S. Commissioner, S. D. of N. Y.

(Indorsed:) Bill of complaint. Filed April 7, 1887. W. J. Doolittle, clerk.

9 *Præcipe for Subpœna.*

Circuit Court of the United States for the Northern District of New York.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. CONGLE, and RICHARD W. ELLIOTT, Complainants,
vs.
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD, Defendants.
} In Equity.

William S. Doolittle, clerk circuit court U. S., northern district of N. Y.:

You will please issue a subpœna to the defendants, Charles H. Hard, John J. Crawford, and Henry D. Hard, in the above-entitled action, returnable on the first Monday of June, 1887.

LEONARD B. SUTRO,
Solicitor for Complainants, 59 Liberty Street,
New York City, N. Y.

Dated New York, April 5, 1887.

Indorsed: Præcipe for subpœna. Filed Apr. 7, 1887. W. S. Doolittle, clerk.

Order.

In the Circuit Court of the United States for the Northern District of New York.

UTICA, *April* 7, 1887.

Present: The Honorable William J. Wallace, judge.

On filing bill of complaint in this cause and on motion of Leonard B. Sutro, defendants' solicitor—

Ordered that a writ of subpœna do issue out of and under the seal of this court, pursuant to the prayer of said bill, and that this cause be docketed for said complainants.

10 *Writ of Subpœna.*

The President of the United States of America to Charles H. Hard, John J. Crawford, and Henry D. Hard, Greeting:

You are hereby commanded that you personally appear before the judges of the circuit court of the United States for the northern district of New York, in the second circuit, on the first [L. S.] Monday in June, 1887, to answer to a bill of complaint exhibited against you in said court by James B. Ryan, Francis A. Hall, William R. Cougle, and Richard W. Elliott, and to do further and receive whatever said court shall have considered in that behalf, and this you are not to omit under the penalty of two hundred and fifty dollars.

Witness the Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at the city of Utica, in said northern district, the 7th day of April, eighteen hundred and eighty-seven.

W. S. DOOLITTLE, *Clerk.*

LEONARD B. SUTRO,
Solicitor for Complainants.

MEMORANDUM.—The defendant is to enter his appearance in the suit above mentioned in the clerk's office at Utica on or before the day at which the above subpœna is returnable; otherwise the bill may be taken *pro confesso.*

W. S. DOOLITTLE, *Clerk.*

11 UNITED STATES OF AMERICA, *Northern District of New York,* } *ss:*

I hereby certify that on the 9th day of April, 1887, at Oneida, in my district, I personally served the within writ of subpœna on the within-named defendants by showing the same to each — them, with the seal of the court thereon, and at the same time delivering to and leaving with each of them a true copy thereof.

W. H. BUNN,
U. S. Marshal,
By P. D. CONDON, *Deputy.*

Fees, $7.62, paid.

Indorsed: Equity subpœna. Filed Apr. 9, 1887. W. S. Doolittle, clerk.

12 *Præcipe for Appearance.*

United States Circuit Court, Northern District of New York.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. CONGLE, & RICHARD W. ELLIOTT
v.
CHARLES H. HARD, JOHN J. CRAWFORD, & HENRY D. HARD. } No. 5622.

To William S. Doolittle, Esq., clerk of U. S. circuit court, Utica N. Y.

SIR: Please enter our appearance in the above-entitled actions as attorneys & solicitors for the defendants therein.

Dated June 2d, 1887.

Yours, &c., JENKINS & DEVEREUX,
Solicitors for Defendants, Oneida, N. Y.

(Indorsed:) Notice of appearance. Filed June 3, 1887. W. S. Doolittle, clerk.

Order.

In the Circuit Court of the United States for the Northern District of New York.

UTICA, *June* 3, 1887.

Present: The Honorable William J. Wallace, judge.

On filing præcipe in this cause and on motion of Messrs. Jenkins & Devereux—

Ordered that their appearance as solicitors for the defendants herein be, and the same is hereby, entered, and that this cause be now docketed for said defendants.

13 *Answer.*

United States Circuit Court, Northern District of New York. In Equity.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. CONGLE, and RICHARD W. ELLIOTT
ag'nst
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD. } No. 5622.

The defendants, for answer to the bill of complaint of the complainants, answering, say:

The defendants admit that the complainants are residents of the said State of New York, and they admit that the defendants are copartners doing business under the name of "Hard Bros. & Co." and are citizens of said State.

14 Defendants deny on information and belief that the said Charles H. Dunks and James B. Ryan were the true, original, and first inventors or discoverers of a certain new and useful improvements in swing woven-wire bed bottoms and covered by the letters patent mentioned in the said bill; and the defendants say on information and belief that said alleged improvement and manufacture mentioned in the said bill of complaint was not an invention when produced by the said Charles H. Dunks and James B. Ryan; that it was not novel at that time, and that apparatus substantially identical with it in character had been previously patented in letters patent of the United States granted to Marcus A. Hunt, dated January 24, 1882, and also in letters patent of the United — granted to Jonas Rouse July 4, 1875, and also in letters patent of the United States granted to Charles H. Hard, dated ——, 18—, and also letters patent of the United States granted to J. Perry, dated Nov. 7, 1865; and also letters patent of the United States granted to B. Van Dyke, dated June 29, 1880; and also in letters patent of the United States granted to S. C. Lusk, April 13, 1875; also in letters patent of the United States granted to W. Hayward April 26, 1881; and also in letters patent of the United States granted to the Hartford Woven Wire Company, dated ——, —; and also in letters patent of the United States granted to J. M. Farnham, dated Nov. 30, 1869, and also on the 29th day of May, 1877; and that the said improvement and manufacture mentioned in the said bill of complaint and covered by the letters patent in suit was previously known and used by the defendants or some one of them for more than two
15 years prior to the 10th day of May, 1881, and also by the said Marcus A. Hunt and others, as defendants are informed and verily believe.

And the defendants further say on information and belief that the said alleged invention was in public use more than two years before the said Charles H. Dunks and James B. Ryan made any application for letters patent thereon.

And defendants further say on information and belief that the said Charles H. Dunks and James B. Ryan actually abandoned their said alleged invention before he or they made any application for letters patent therefor.

And the defendants further say that they have no knowledge whatever whether any original letters patent for said alleged invention were ever issued or delivered to the said Charles H. Dunks and James B. Ryan or either of them, or that the said Charles H. Dunks and James B. Ryan ever made, executed, or delivered to these complainants or filed and duly entered of record an assignment in the United States Patent Office to said complainants *are* were then, had or have —, or are the full, sole, and exclusive owners of the said alleged invention of the said Charles H. Dunks and James B. Ryan and their letters patent therefor in and for the territory known as the Middle and Eastern States of the United States, or that the entire title to said letters patent in and throughout said territory have been transferred to the complainants, or that they are now the sole and

exclusive owners *of* said territory of the said swing woven-wire bed bottoms under the aforesaid letters patent.

16 And the defendants further say that they have no knowledge whether any original letters patent for said alleged invention were ever issued and delivered to the said Charles H. Dunks and James B. Ryan.

And the defendants further say on information and belief that they have no knowledge whether that complainants have been carrying on the business of wholesale manufacture of swing wire bed bottoms under said letters patent or whether they have made it profitable to themselves or whether said alleged invention has been or is of great benefit and advantage to themselves or the public, or that the public have generally acknowledged and acquiesced in the alleged rights of complainants.

And the defendants deny on information and belief that they ever made, constructed, used, or sold or caused to be made, constructed, used, or sold any specimens of any apparatus covered by the said letters patent or manufacture, and likewise deny that they ever derived any profit from any such making or using, and likewise deny that the complainants ever sustained any damages on account of any such transactions committed or caused to be committed by the defendants.

And the defendants deny on information and belief that they have ever done or caused to be done any matter, act, or thing in infringement of the letters patent in suit.

And these defendants, further answering, say on information and belief that the defendant Charles H. Hard, being the first,

17 true, and original inventor and discoverer of an improvement in the mattress frames and of fastening and securing *of* the woven-wire bed bottom to such frames, did, upon the 13th day of November, 1883, and thereafter, on the 27th day of May, 1885, upon due application made to the Commissioner of Patents, obtain letters patent of the United States for the invention and improvement and manufacture as therein in his specification set forth and described, which were signed by the Secretary of the Interior and countersigned by the Commissioner of Patents and delivered to the said Charles H. Hard and numbered respectively 288,431 and 318,728, by which was granted to the said Charles H. Hard, his heirs, administrators, and assigns, for the term of seventeen years, the full and exclusive right of making, using, and vending to others to be used the said invention therein mentioned and described, as will more fully appear by reference to the said letters patent now remaining on record in the United States Patent Office and now ready to be produced, and which is the only improvement by them manufactured.

And these defendants further say that after the issuing of said letters patent the said Charles H. Hard transferred to these defendants the right to make, use, and vend to others said mattress frames and improvements. Under and in pursuance of said right therein defendants from thence hitherto have made, used, and vended to others the same, but they deny that the same is an infringement of

the letters patent in suit; and these defendants further say and aver
on information and belief that the mode, form, and way and
18 manner of fastening and securing the said woven-wire fabric
to said frame has been in common and public use since the year 1859, and that these defendants or some of them have, as they are using, used the same for more than two years prior to May 10, 1881.

And defendants, further answering upon information and belief, say and aver that the alleged letters patent and each and every part thereof are null and void, because the said Charles H. Dunks and James B. Ryan were not the true and original inventors of the alleged improvement therein described and claimed, but that the same and all the material and substantial *points* thereof were, long prior to any supposed invention thereof by said Dunks and Ryan, patented and described in and by the following printed publication and letters patent, to wit:

Patented.	Number.	To—	Dated—
"	26575	A. M. Dye	Dec. 27, 1859
"	19193	J. Drensike	Sept. 24, 1867
"	29079	J. N. Bennett	Aug. 21, 1860
"	33685	O. A. A. Rossilion	Nov. 5, 1861
"	34971	T. S. Lambert	Apr. 15, 1862
"	57770	E. R. Rison	Sept. 4, 1866
"	51132	W. Bramhill	Nov. 28, 1865
"	82081	E. L. Buckingham	Sept. 15, 1868
"	286,866	W. S. Thacher	Oct. 16, 1883
"	7704	J. H. Farnham	Nov. 30, 1869
"		"	May 29, 1877
"	73977	J. Potter	Feb. 4, 1868
"	4880	H. Pace	Dec. 10, 1846
"	99	"	Nov. 4, 1851

Patent of Great Britain, etc., number 2766 of 1867, granted
19 to Thomas E. Clark October 1, 1867; patent of Great Britain, etc., number 380 of 1866, granted to S. J. Salkeld; letters patent of Great Britain number 3040 of 1869, granted to A. V. Newton Oct. 18, 1869; patent number 261,148, dated July 18, 1882, granted to T. P. Clady; patent number 318,728, granted to Charles H. Hard May 26, 1885.

All of which statements and defences these defendants are ready to aver, maintain, and prove as this honorable court shall direct, and we pray hence to be dismissed with costs in this behalf sustained.

CHARLES H. HARD.
HENRY D. HARD.
JOHN J. CRAWFORD.
JENKINS & DEVEREUX,
Solicitors and of Counsel for Defendants.

UNITED STATES OF AMERICA,
Northern District of New York, County of Madison, } ss:

On this 2d day of July, 1887, before me personally appeared Charles H. Hard, John Crawford, and Henry D. Hard, the above-named defendants, who, being by me severally duly sworn, does each for himself depose and say that he has read the foregoing answer subscribed by him and knows the contents thereof, and that the same is true of his own knowledge except as to the matters therein stated to be alleged on information and belief, and that as to those matters he believes it to be true.

T. H. JURDEN,
Notary Public.

(Indorsed:) Answer. Filed July 4, 1887. W. S. Doolittle, clerk.

20 *Amendment to Answer.*

United States Circuit Court, Northern District of New York. In Equity.

JAMES B. RYAN & Others
vs.
CHARLES H. HARD and Others. } No. 5622.

It is hereby stipulated and agreed by and between the parties herein and their respective solicitors that the defendants may amend their answer by adding thereto at the end of paragraph in folio 19, after the word & figures "May 26th, 1885," the following:

"Patent number 53888 to F. Schimming, dated Apr. 10, 1866.

"Patent No. 74293 to F. Stanley Bradley, dated Feb. 11, 1868.

"Patent number 101,029 to G. W. Loomis, dated Mar. 22, 1870.

"Patent number 5312 to A. Turnbull & R. L. Webb, reissue March 4, 1873."

And further stipulated that on filing this stipulation with the clerk of the court the answer be deemed amended accordingly; but this stipulation is upon the express conditions that the replication hereinbefore filed shall be deemed as traversing said amended answer & the date of issue remains as it was heretofore, and that the testimony already taken shall remain in the case so that
21 complainants need not take such testimony over again.

Dated Oct. 20, 1887.

LEONARD B. SUTRO,
Sol'r- for Compl'ts.
JENKINS & DEVEREUX,
Sol'r- for Def'ts.

Indorsed: Stip. amend. ans. Filed Oct. 22, 1887. W. S. Doolittle, clerk.

22 *Replication.*

Circuit Court of the United States for the Northern District of New York. In Equity.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. COUGLE, and RICHARD W. ELLIOTT, Complainants,
against
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD, Defendants. } No. 5622.

These repliants, saving and reserving unto themselves all and all manner of advantage of exception to the manifold insufficiencies of the said answer, for replication thereunto say that they will aver and prove their said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the defendants is uncertain, untrue, and insufficient to be replied unto by these repliants; without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied unto, confessed and avoided, traversed or denied, is true; all which matters and things these repliants are and will be ready to aver and prove as this honorable court shall direct, and humbly pray as in — by their said bill they have already prayed.

LEONARD B. SUTRO,
Solicitor for the Complainants.

(Indorsed:) Replication. Filed Aug. 1, 1887. W. S. Doolittle, clerk.

23 *Decree.*

At a special term of the circuit court of the United States of America for the northern district of New York, in the second circuit, held at chambers in Utica, N. Y., on the 30th day of August, A. D. 1888.

Present: The Honorable Alfred C. Coxe, judge.

JAMES B. RYAN *et al.*
ag'st
CHARLES H. HARD *et al.* } No. 5622.

This cause having come on to be argued before Hon. Alfred C. Coxe, judge, at a stated term of this court held at Canandaigua on the 19th & 20th days of June, 1888, and after due consideration a decision having been filed dismissing the bill of complaint, it is, on motion of Jenkins & Devereux, solicitors for defendants—

Ordered, adjudged, & decreed that the bill of complaint herein be, and the same is hereby, dismissed with costs to defendants, to be taxed.

ALFRED C. COXE.

Indorsed: Final decree. Filed Aug. 30, 1888. W. S. Doolittle, clerk.

24 And thereafter and on October 1st, 1888, defendants' costs were duly taxed by the clerk at $183.10.

Whereupon the said pleadings, process, orders, and final decree, together with other papers in said cause, are annexed hereto and this decree is duly enrolled this 1st day of October, A. D. 1888, at 11 o'clock in the forenoon.

W. S. DOOLITTLE, *Clerk.*

(Indorsement on cover:) Equity. No. 5622. United States circuit court, northern district of New York. James B. Ryan *et al. vs.* Charles H. Hard *et al.* Enrolled decree. Jenkins & Devereux, defendants' solicitors. Def'ts' costs, $183.10. Filed Oct. 1, 1888, at 11 o'clock a. m. W. S. Doolittle, clerk.

25 *Complainants' Testimony.*

United States Circuit Court, Northern District of New York. In Equity.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. COUGLE, and RICHARD W. ELLIOTT, Complainants,
vs.
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD, Defendants.

Proofs for final hearing taken on behalf of the above-named complainants before James H. Hunter, a notary public in and for New York county, by consent of counsel for the respective parties, at the office of Leonard B. Sutro, Esq., No. 206 Broadway, New York city, under and pursuant to due notice, this 25th day of August, 1887, commencing at 10 o'clock a. m.

Present: Leonard B. Sutro, Esq., counsel for complainants; James B. Jenkins, Esq., counsel for defendants.

26 Counsel for complainants offers in evidence a Patent Office copy of letters patent granted to Charles H. Dunks and James B. Ryan, dated May 10, 1881, numbered 241,321, for improvements in swing woven-wire bed bottoms, which are marked "Complainants' Exhibit A," J. H. H., notary.

Certification of the above copy waived by counsel for defendants. Also offers in evidence the following assignment: Charles H. Dunks to Elliott & Cougle, dated June 7, 1884, recorded June 23, 1884, Liber D 31, page 302, of the U. S. Patent Office records, and the same is marked "Complainants' Exhibit B," J. H. H., notary.

Counsel for defendants objects to the assignment being received in evidence upon the following grounds:

First. The assignment purports to grant a license only to the said Elliott & Cougle to manufacture said patented article in the territory therein mentioned.

Second. That it does not assign or convey the absolute and exclusive title and right to manufacture and sell the same in said territory.

Third. That the assignment shows upon its face that the assignor

has rights and interests therein in said territory as the owner thereof or one of the owners thereof, and he has an interest in the subject-matter in litigation and should have been made a party complainant in this action.

Fourth. It is incompetent to show title to or in said Elliott & Cougle.

Fifth. It is incompetent, irrelevant, and immaterial for the purposes of this action.

27 Counsel for complainants in answer to the said objections and each of them says and objects they should most and all of them have been made before answer, and not having been so done are waived if they or any of them are good in law.

Again, complainants' counsel says that the legal effect of said assignment, Complainants' Exhibit B, is, in his opinion, probably to convey all the rights of Charles H. Dunks under said patent within the territory in said assignment mentioned to said Elliott and Cougle.

Also offers in evidence the instrument in writing called an assignment, executed by Richard W. Elliott and W. Russell Cougle, signed and acknowledged February 12th, 1887, purporting to convey certain rights to Frank A. Hall, which is marked "Complainants' Exhibit C," J. H. H., notary.

Counsel for the defendants interposes the following objections to the receiving in evidence of said assignment or instrument in writing as follows:

First. That the alleged assignment by Charles H. Dunks to said Richard W. Elliott and W. Russell Cougle, and being Complainants' Exhibit B, grants a mere license to said Elliott and Cougle personally to manufacture and sell said patented article in said territory and does not assign or convey to them the absolute and exclusive title to manufacture and sell said patented article.

Second. That said Dunks did not confer to them in said assignment the exclusive right and authority to manufacture and sell said patented article in said territory.

Third. Said Dunks did not grant or confer therein to said Elliott and Cougle the right to assign any interest in said patented article to the said Frank A. Hall.

28 Fourth. That the alleged assignment by Richard W. Elliott and W. Russell Cougle to Frank A. Hall was and is unauthorized and void.

Fifth. That by said assignment no legal rights to the manufacture, use, and sale of said patented article was conferred upon said Hall.

Sixth. That it is incompetent and immaterial.

It now appearing from the two alleged assignments that there is a misjoinder of parties complainant and a non-joinder of complainants by not making Charles H. Dunks a party complainant, and that complainants, Ryan, Elliott, Cougle, and Hall, have not a joint interest in said patented article, *that* notice is hereby given that the defendants will move this court to amend the answer to the bill of complaint to set up said misjoinder and non-joinder of parties

complainant, or that *he* will move this court to dismiss the bill of complaint upon the grounds that there is a misjoinder and non-joinder of parties complainant in the particulars above mentioned.

The objection of incompetency to the foregoing assignments is not intended to apply to the want of proof of execution of said assignments.

Counsel for complainants reserves the right to substitute a certified copy from the Patent Office of the assignment, Complainants' Exhibit C, if he finds it necessary.

Defendants' counsel states that he will not object to the introduction of such certified copy.

Complainants' counsel objects to all and each of the objections and notices raised herein to Complainants' Exhibit C on the grounds as he objected to the objections to Complainants' Exhibit B.

Counsel for defendants raises the further objection to the said instruments that they show a non-joinder of parties complainant by not joining said Dunks a party complainant, and also that the assignment of Elliott & Cougle having assigned to Hall they should not have been joined as complainants in this action.

29 Counsel for complainants objects to the last objection raised that it is made too late after answer, and is therefore waived; and, further, that Elliott & Cougle are proper parties, having still some interest not assigned to Hall.

Complainants' counsel offers in evidence a bill of Hard Bros. & Co., dated February 25th, 1887, of the purchase and payment of the bed in court, and said bill is marked "Complainants' Exhibit D," J. H. H., notary.

Counsel for complainants also offers in evidence the bed bottom mentioned in the bill, Exhibit D, and the same is marked "Complainants' Exhibit E," J. H. H., notary.

Defendants' counsel admits that the bed bottom, Complainants' Exhibit E, is the one covered by the bill, Complainants' Exhibit D, and was purchased by a man named Frederick Schroeder from the defendants and paid for on the day on which the said bill bears date, and that said bill represents said purchase and was so purchased in the city of New York.

Complainants rest, reserving the right to take further testimony on their further *prima facie* case.

Adjourned till further notice.

JAMES H. HUNTER, *Notary.*

(Indorsed:) Complainants' testimony. Filed June 20, 1888. W. S. Doolittle, clerk.

30 Circuit Court of the United States, Northern District of New York. In Equity.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. COUGLE, and RICHARD W. ELLIOTT, Complainants,
versus
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD, Defendants.

Proofs for final hearing taken on behalf of the above-named complainants before John A. Shields, a United States commissioner for the southern district of New York, at the office of Leonard B. Sutro, Esq., No. 206 Broadway, New York city, under and pursuant to due notice, this 5th day of March, 1888, commencing at 9.30 o'clock a. m.

Present: Leonard B. Sutro, Esq., of counsel for complainants, and James B. Jenkins, Esq., of counsel for defendants.

Mr. JAMES B. RYAN, produced and sworn as a witness on the part of the complainants, deposes and says in answer to questions propounded by the complainants' counsel, LEONARD B. SUTRO, Esq., having been first duly sworn:

1 Q. What is your name, age, residence, and occupation? Are you one of the complainants in this action? Are you a professional patent expert?

31 A. James B. Ryan; age, 36 years; residence, Peakville, Delaware county, New York; I am a manufacturer of woven-wire bed bottoms, spring beds, and bedding; I am one of the complainants in this action, and not a professional patent expert.

2 Q. Are you a practical mechanic?

A. Yes, sir; in the manufacture of woven-wire bed bottoms.

3 Q. State your experience and means of observation to qualify you to testify in regard to woven-wire bed bottoms and to bed bottoms generally; also the length of time of your experience in woven-wire bed bottoms.

A. I have been a practical manufacturer of woven-wire bed bottoms and spring beds for eleven years.

4 Q. State whether you have examined the letters patent in suit, No. 241,321, issued to yourself and C. H. Dunks, with a view to testify in this action and whether you understand the same.

A. I have and I think I do.

5 Q. Are mattresses of any kind sold the bottoms of which are made of canvas, such as in Loomis' patent, Defendants' Exhibit C, or of spiral springs, such as in Schimming patent, Defendants' Exhibit A, or of cord, such as in Bradley patent, Defendants' Exhibit B?

Counsel for defendants objects to the question as incompetent, irrelevant, and inadmissible, and, if answered, he will move this honorable court at the proper time to strike out said answer.

A. I have never seen any sold, manufactured, or in use anywhere.

6 Q. Now, then, coming to swinging mattresses, what, if any, is the advantage of swinging woven-wire mattresses over plain woven-wire mattresses?

A. Swinging woven-wire mattresses are more elastic, flexible, and durable than plain woven-wire mattresses and will last three or four times as long.

32 7 Q. Now, did you or not ever see, hear, or know of any swinging bed bottoms in the market like or similar to those shown and described in Defendants' Exhibits A, B, and C or any of them?

A. No, sir.

8 Q. What caused you to make a clamping swing-bar specially adapted for woven-wire bed bottoms?

Counsel for defendants objects to the question as irrelevant and immaterial.

A. I made the clamping swing-bar in order to swing woven wire from end springs so as to prevent its sagging, as it always sags when attached to rigid end bars.

9 Q. How do the clamping swing-bars prevent the woven-wire bottom from sagging?

A. Because those clamping swing-bars make it possible to suspend woven wire from flexible end springs instead of rigid end bars, as formerly, and relieve the strain upon the woven wire by expanding and contracting in conjunction with it, and thus prevents the wire from drawing out and sagging.

10 Q. How long were you engaged, if at all, in studying up, experimenting, theoretically and practically, and devising methods by which woven wire could be swung from end springs instead of rigid end bars?

Counsel for defendants object to the question as incompetent and immaterial.

A. About two years.

Counsel for defendant- will move at the proper time to strike out said answer for the reasons and upon the grounds last above stated.

11 Q. What different experiments and methods did you try or attempt during that time?

Counsel for defendants makes the same objections as to last previous question and will make the same motion to strike out.

33 A. I first tried to devise some method of attaching the woven wire directly to the end springs, but found it both impracticable and foolish, as the wire and springs would pull apart under pressure or tension. I next tried to utilize single bars or rods similar to those used in Defendants' Exhibits A, B, and C, but found them also impracticable, as they would split and break, letting both staples, eye-hooks, and ends of the woven wire draw out when stretching a bed into a bed frame.

I next fastened woven wire to the old double wooden end bars,

like Defendants' Exhibit 2 Wooden Bars, by means of staples and nails and swung it from end springs, but it was so heavy, clumsy, stiff, and rough that none would buy them; besides they had an unsmooth surface which would wear and tear the bedding, not being in horizontal plane. I next devised and constructed light, flexible, double-clamping swing-bars of wood and metal and attached them as shown in Dunks and Ryan's patent in suit and found them extremely flexible, practical, saleable, and durable even to the present day.

12 Q. What effect, if any, has strain or weight upon woven wire when fastened to rigid end bars, such as in the drawing now shown you of letters patent to J. M. Farnham, No. 97375?

Complainants' counsel offers said letters patent in evidence. The same are admitted in evidence and marked Complainants' Exhibit Hartford Woven-Wire Mattress Patent, March 5, 1888, J. A. S., U. S. com'r.

Defendants' counsel objects to the evidence and to the admission of the exhibit as irrelevant and immaterial.

Defendants' counsel, however, waives certification of said letters patent.

34 A. It has the same effect that a sudden jerk or pull would have on a man's arm were his other arm fastened to a rigid end bar without end springs to relieve the strain. His arm would have all the strength and elasticity drawn out of it, and so does the woven wire when so fastened.

Counsel for defendants will move this honorable court to strike out this answer at the proper time for the reasons and upon the grounds last above stated.

13 Q. Would it be possible to fasten or swing woven wire from its ends by single swing bars or rods, either of wood or metal, in a practical, merchantable, and durable manner?

A. It would not, because you cannot clamp the ends of the wire or anything else with single bars, and if attached to a single bar in any other manner it will pull out when being stretched into a bed bottom, as the strain required to get the proper tension on a woven-wire bed bottom is about twenty-five hundred pounds.

14 Q. How much strain is required to get a tension on the bed bottoms shown in Defendants' Exhibits A, B, C, and D?

A. From three to five hundred pounds.

15 Q. Is or is not that the reason why single end bars or rods could be used in those bottoms?

A. Yes, sir.

16 Q. What, if any, are the peculiar and practical advantages of the double-clamping swing-bars of the patent in suit over the bars or end rods in Defendants' Exhibits A, B, and C?

A. First. The double-clamping swing-bars have a throat to receive the web or wire and means for clamping and holding the same without hooking or bending the wire over or around something.

Second. It is the first and only swing-bar that holds woven wire or any other kind of bed bottom by clamping.

Third. It is the first and only swing-bar that holds the wire on a smooth level plane without hooking or bending around something.

Fourth. It is the first and only swing-bar that has a clamping metal bar on top provided with holes to receive the end springs as combined.

Fifth. It is the first and only swing-bar that holds bed bottoms of any kind by means of clamping the ends between two or more pieces.

Sixth. It is the first and only bars, either swing or rigid, where woven wire is clamped by means of rivets or bolts.

17 Q. How is it dissimilar to the Bradley bar in Defendants' Exhibit B?

A. Because it is a double-clamping bar and connected directly to the springs and bottom, whereas the Bradley bar is connected indirectly by means of eye-hooks, which hooks will draw out as soon as the wooden bar shrinks or seasons. It is also dissimilar because it has to be made thick and heavy in order to attach the eye-hooks, making an unsmooth surface, as it is elevated above the surface of both springs and cords bottom, and will wear and tear the bedding; besides, the thickness of the bar prevents it having any yielding flexibility, and is only a stiff, rigid obstruction under the bedding as well as the center slat, and can only be compared, in my opinion, to railroad ties or floor joists as far as its useful operation is implied in a bed bottom.

18 Q. How is it dissimilar to the rods of the Schimming patent, Defendants' Exhibit A?

A. Because they are only single rods, not bars, and have no means of clamping anything; besides they all run through the sides spiral coils of the web bottom transversely, which would be impos-
36 sible to do with the ends of woven-wire bottoms, and hold them practically; besides the end springs are attached indirectly to the spiral bottom by means of straps, which straps will cut, break, and ravel out; besides the wooden rods will crack, split, and break, having no metal top plate to clamp and assist them in holding the ends of the bottom rigid, and, in my opinion, has no more similarity in manner of construction or utility to my swing-bars than an ox yoke has to a bow and arrow.

19 Q. How is it dissimilar to the Loomis bars of Defendants' Exhibit C?

A. Because, like the Bradley and Schimming bars, they are single wooden bars wholly unsuitable for having woven wire attached to them, because they have no metal top plate or bar to clamp and hold firmly the ends of the woven wire under strain or tension, and the ends of end springs, being attached directly to these wooden bars without the assistance of a metal clamping top bar, will allow the springs to wear and cut through the canvas and wooden bars, thus destroying the entire bed bottom. Furthermore, wooden spring bars without the clamping metal top bars are extremely objectionable, because wood in its original state contains knots, checks, splits,

and unsound spots, and is very liable to warp and twist all out of shape and cannot be relied on for swing-bars without the assistance of metal bars to hold them in place and prevent their splitting or breaking. Hence the Loomis bars, in my opinion, has no more similarity to mine in construction or utility than a fish-hook has to an anchor.

20 Q. What dissimilarity has the Turnbull and Webb (Defendants' Exhibit D) alleged bars or rods to the swing-bars of the patent in suit?

A. It has no bars at all of any kind—single, double, nor treble; hence it is impossible to compare.

Adjourned till 1.30 p. m.

1.30 o'clock p. m.—after adjournment.

Present: Counsel and witness as before.

37 21 Q. Wherein is Defendants' Exhibit B, or cord bed bottom, dissimilar and inferior, if at all, to Complainant's Exhibit E, or woven-wire bed bottom?

A. First, it is a cord or rope bed bottom.

Second. It has no spiral tension.

Third. It is directly fastened to eye-hooks instead of swing-bars. It has a stiff slat in the center fastened to side springs and is not a swing bottom. It is inferior, because cord or rope, like canvas or cloth, has no spiral springy tension to contract or spring back like woven wire when strained or pressed upon, and hence it draws out and sags. It is also inferior because it strains the end springs on account of its having no spiral tension to relieve them like woven wire. Besides, the cords will wear, ravel, and cut where they enter the eye-hooks, and it is a harbor for dust and vermin as well as infection. Besides, the eye-hooks will draw out as soon as the wooden bars shrinks or cracks and thus destroy the bed bottom. It has also a dead, jerky motion, and soon sags and wears out, having no durability or elasticity like woven wire.

22 Q. Wherein is Defendants' Exhibit A, or sacking spiral spring bed bottom, dissimilar and inferior to Complainants' Exhibit E?

Counsel for defendants objects to the question upon the ground that the witness is not an expert; also that the question is incompetent and irrelevant; also that the witness is not qualified to speak nor is it proper for him to say whether Complainants' Exhibit A is inferior to Defendants' Exhibit E; also the witness can state facts only and cannot give his conclusions.

Also it is the province of the court to determine whether one is inferior to the other, and if the question is answered this honorable court will be moved at the proper time and place to strike out the answer.

38 A. It is different, because it is a sacking made of spiral spring, interlaced and not woven wire; it is inferior, because it is attached to the end springs indirectly by means of wooden rods and straps, which will wear, crack, cut, and break under strain or ten-

sion; besides the bottom is swung from its sides instead of its ends, as woven wire, and thus destroys all longitudinal spiral tension and elasticity and makes a perfect, rigid, and inflexible bottom, and destroys all springy elasticity.

23 Q. Why is it swung from its sides instead of from its ends?

A. Because it could not be swung otherwise by single rods or bars in a practical and durable manner.

Counsel for defendants will move this honorable court at the proper time to strike out the answer, and particularly the latter part thereof, as calling for a conclusion and the opinion of the witness, and it is improper and incompetent testimony; also irrelevant and immaterial.

24 Q. What effect does swinging a woven-wire bed bottom from its sides instead of its ends have upon its elasticity?

Counsel for defendants objects to the question on the same grounds and reasons stated in the last previous question.

A. It destroys all its elasticity and springy tensions; besides it would leave the ragged ends of the woven wire projecting out at each side to tear the bedding. Hence Defendants' Exhibit A, sacking spiral spring, has only a rigid, dead, jerky motion, which will strain, tear, and break swing-rods, straps, and end spring when under pressure.

Counsel for defendant- will move to strike out said answer as not responsive to the question and as calling for the conclusion and opinion of the witness, and for the other reasons stated in the last above objections.

39 25 Q. Wherein is Defendants' Exhibit C, or Loomis patent, dissimilar and inferior to Complainants' Exhibit E?

Counsel for defendants objects to the question on the same grounds and for the same reasons stated to questions 22, 23, and 24 last above.

A. It is different, because it is a cloth or canvas bottom; it is inferior, because it is a textile fibre and has no spiral tension to enable it to contract or spring back when strained or pressed upon, and thus stretches and sags; besides it is a vermin harbor, retains dust, moisture, and infection, will soon wear and tear loose from the single wooden end bars, cord and end springs. It has hardly any flexibility, durability, or tension.

Counsel for defendants gives the same notice of motion to strike out this answer for the reasons above stated, and also on account of repetition.

26 Q. Wherein is Defendants' Exhibit D bottom dissimilar and inferior to Complainants' Exhibit E bottom?

Defendants' counsel objects to the question for the reasons and upon the grounds stated in the last previous question.

A. Because it is a rod and ring bottom linked together rigidly;

it is inferior to woven wire, because it is perfectly rigid, without any spiral flexibility or tension in itself. All its elasticity is derived from the end springs solely, and its perpetual dead, jerky strains on those springs soon draws all the tension and elasticity out of them, and the rigid, inflexible rod and link bottom soon sags and becomes worthless.

27 Q. Look at Complainants' Exhibit E and state in what respects only it differs from the exact drawings of patent in suit, supposing for the present the lower bar illustrated in such drawings to be a wooden bar.

40 Counsel for defendants objects to the question on the ground that it is improper and incompetent and inadmissible under the pleadings in that it assumes what is not true in fact.

A. The only difference is that the wire is hooked instead of stapled.

28 Q. In view of the prior state of the art, do you consider the difference in Complainants' Exhibit E a substantial change taking it out of the patent in suit or not?

A. No, sir.

29 Q. I asked Mr. C. H. Hard, the principal witness of defendants, whether a patent is limited narrowly to just the mechanical devices shown or whether it also covers equivalents, and he answered that he thought a patent does not cover equivalents. Is that your view?

Objected to by counsel for defendants as incompetent and improper.

A. I think a patent does cover equivalents.

30 Q. I now come to your first claim and, reading from it, ask you has or has not the defendants' bed bottom, Complainants' Exhibit E, the combination with an end rail of the links or springs, the section of woven-wire fabric, and an intermediate connecting transverse bar provided upon one edge with a throat adapted to receive the ends of the wire and upon the opposite side the means for attaching the links or springs, and whether it has or has not all these combined substantially as described in your patent in suit?

Objected to by defendants' counsel as incompetent and improper and as leading; also the witness is not an expert and is not qualified to give an opinion with reference to the matters embraced in said question.

A. It has.

41 Defendants' counsel gives the said notice of motion to strike out.

31 Q. Consider the second claim read, and then I ask you has or has not Complainants' Exhibit E that combination or substantially as described in your patent in suit?

Counsel for defendants interposes the same objections as to the

last previous question, and also that the question calls for a conclusion.

A. It has.

32 Q. Did you or not ever see, know, or hear of any bar in the trade on any mattress or any end rail of any mattress made of two parts, either wood or metal, riveted together with rivets or bolts, before the invention of the combinations of the patent in suit?

A. No, sir.

33 Q. Were the thick bars like Defendants' Exhibit Two Wooden Bars, when used, riveted or bolted together, or were they nailed or screwed together, and give reasons why?

Objected to by defendants' counsel as incompetent and no foundation laid for the evidence; also as improper.

A. They were nailed or screwed together on account of its cheapness and quickness.

34 Q. I show you a cut (complainants' counsel offers same in evidence and it is marked Complainants' Exhibit Cut of Two Wooden Bars and the same is admitted in evidence) and ask you if or if not the end rail therein shown at C is about the way and position that the Defendants' Exhibit Two Wooden Bars was used in the trade generally before the invention of the device of your patent in suit?

Objected to by defendants' counsel as incompetent and improper; also that the cut represents a bed bottom subsequently patented by Dunks and Glody in the year 1882; it is irrelevant and immaterial.

42 A. Yes.

35 Q. State how long woven wire has been used as a web or fabric for bed bottoms.

A. About twenty-five years in this country and about forty-five years in Germany.

36 Q. State what effect it has on the woven wire to use it in the position relative to the end rail as shown in Complainants' Exhibit Cut of Two Wooden Bars.

A. The wire under pressure or tension is liable to break and pull out where it is drawn over the sharp edge of the larger of the two wooden end bars at right angles.

37 Q. State whether or not mattresses ever made you any difficulty with the trade on that account and what the trade did.

Objected to by defendants' counsel as incompetent, and is not sufficiently specific, but is too general; also as irrelevant and immaterial.

A. I did have trouble as many mattresses were returned to me for repair by different furniture dealers.

38 Q. What (if any) effect does the squeezing of the wire and riveting the two bars along their length have as to the tendency to pull out either a hooked wire like in Complainants' Exhibit E or a stapled wire like in the woven-wire bed bottom now shown you?

Complainants' counsel offers in evidence the bed bottom now so shown, which is marked Complainants' Exhibit Dunks and Ryan Fig. 3, March 5, 1888, J. A. S., U. S. com'r.

The same is admitted in evidence before the witness answers.

A. The clamping of two bars together as combined in my patent assists the hooks and staples in holding securely the ends of the woven wire.

39 Q. Which bar do you consider a fair model of the exact illustration, Fig. 3 of the patent in suit, the stapled bar of Com-
43 plainants' Exhibit Dunks and Ryan's Fig. 3 or the Defendants' Exhibit Dunks and Ryan's Swing-Bar?

A. Mine—Dunks and Ryan's Fig. 3.

40 Q. Do you mean the bar to which the wire is stapled on the bed bottom just introduced in evidence?

A. Yes, sir.

41 Q. Defendants' witnesses said something about a discontinuance of use by you of your patent by putting a tongue in the center of bar similar to Defendants' Exhibit 3 Iron Bars. I ask you whether and how long and how extensively you sold bed bottoms having the exact construction of Complainants' Exhibit Dunks and Ryan Fig. 3 (both swing-bars, however, having the wire stapled), and how, if at all, you came to change it?

Counsel for defendants objects to the question as improper and incompetent and inadmissible.

A. I sold them about one year and quite extensively, with an increased sale of about 75 to 100 per cent. a month, but some furniture dealers objected to the bottom bar being of wood on account of vermin, so I substituted a metal bar for their benefit and hooked the ends of a wire around it as in Complainants' Exhibit E, but the hooked or bent ends of the wire would tear the bedding and presented a ragged appearance objectionable to many furniture dealers. This objection suggested a further change to myself and foreman, which change is shown in our joint application for a patent, of which a certified copy is now in the possession of my counsel.

Defendants' counsel gives notice that he will move at the proper time this honorable court to strike out this answer for the reasons and upon the grounds stated in the foregoing question; also as irrelevant and immaterial, and especially that portion which is not responsive to the question.

44 Complainants' counsel offers in evidence a certified copy of an application for a patent, which is admitted in evidence and marked Complainants' Exhibit Application, March 5, 1888, J. A. S., U. S. com'r.

Defendants' counsel objects to the paper as inadmissible, as incompetent, and irrelevant; also that the patent was never granted thereon to this complainant, and also that the application was for the combination of 3 bars, illustrated by Defendants' Exhibit Three Iron Bars.

Adjourned to 9.30 a. m. Tuesday, March 6, 1888.

NEW YORK, *March* 6, 1888—9.30 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

The direct examination of Mr. RYAN continued by L. B. SUTRO, Esq.:

42 Q. What was it that induced the patentees to invent some means of swinging woven wire from end springs instead of stationary bars as formerly?

Counsel for defendants objects to the question as irrelevant and inadmissible, and also as improper.

A. Because there was a large and increasing inquiry for several years for some spiral end device in order to prevent the woven wire from sagging, and knew it would be very profitable and practical to produce it.

43 Q. About what profit did the original swing woven-wire bottoms produce?

Defendants' counsel objects upon the same grounds and for the same reasons stated in the last above question, and also that this subject is not a proper inquiry at this time and place, and is not legitimate rebuttal evidence.

45 A. About 75 per cent.

44 Q. About what profit does a woven wire fastened to rigid end bars produce?

Defendants' counsel objects upon the same grounds and for the same reasons stated as to last above question; also that it is speculative, and that would depend upon the state of the markets.

A. About ten per cent.

Counsel for defendants will move this honorable court at the proper time and place to strike out the last two answers on the same grounds stated in the objections, and also gives like notice that he will move to strike out all previous answers to which objections were raised to the questions.

45 Q. Which do the people prefer?

Defendants' counsel objects upon the same grounds and reasons stated to the last three questions, and also that it is an attempt to give the thoughts and opinions of third parties to the record, and it is also hearsay and not the best evidence, and that, if the question is answered, notice is given that this honorable court will be moved at the proper time and place to strike out this evidence.

A. They prefer the swinging woven-wire bottom.

46 Q. Mention a few of the advantages of woven wire as a bed bottom.

Defendants' counsel objects to the question for the same reasons and on the same grounds stated in the last five previous questions;

also there is no claim that the patent in question covers the woven-wire bed bottom, and it is not a proper subject of enquiry here.

46 A. It contains extraordinary durability, cleanliness, and elasticity.

Second. It is proof against insects, infection, and moisture.

Third. It contains spiral tension, spiral elasticity, and spiral flexibility.

Fourth. It commands a better price, gives greater satisfaction, comfort, and ease.

Defendants' counsel gives notice that he will move to strike out the above answer at the proper time and place.

47 Q. What has been the greatest objection to bed bottoms generally?

Counsel for defendants objects to the question as irrelevant and immaterial for the same grounds and upon the same reasons stated in the last previous question.

A. Their sagging in the center.

Defendants' counsel gives notice of the same motion to strike out on the same grounds.

48 Q. Did you ever know of a swing woven-wire bed bottom sagging?

A. No, sir.

49 Q. Did you ever know of woven wire fastened to rigid end bars sagging; and, if so, what was done with them, and how was it done?

Defendants' counsel objects for the same reasons and upon the same grounds stated to the last above question.

A. Yes, sir; I repaired hundreds of such bed bottoms by restretching them.

50 Q. How much did the woven-wire bottom fastened to rigid end bars have to be stretched longitudinally in order to produce the proper tension, and what leverage or strain is required to accomplish this?

47 Defendants' counsel objects upon the same grounds and for the same reasons stated to question 49.

A. It is stretched about five inches, and requires a leverage or strain of about 3,000 pounds to stretch it five inches.

51 Q. What do you mean by spiral tension?

A. I mean the spiral tension or elasticity of spiral springs or wire spirally woven.

52 Q. What effect has the woven wire and end springs, in your patent in suit, on each other when combined, as therein shown?

Defendants' counsel objects for the same reasons and upon the same grounds stated to question 50.

A. The end springs and woven wire thus united produce extra-o-dinary durability, elasticity, and flexibility by acting in conjunction with each other.

53 Q. Did you or not ever put such a clumsy bar in a swinging woven-wire bed bottom which you sold, as Defendants' Exhibit Two Wooden Bars or Defendants' Exhibit Dunks and Ryan Swing-Bar, and, if you had, what would have been its effect?

The same objections by defendants' counsel as to the last previous question; also as to the form of the question, and particularly to the use of the word clumsy.

A. No, sir; it would have produced an extremely objectionable and unmerchantable bed bottom.

54 Q. Did the bed bottoms which you sold, having the exact construction of Complainants' Exhibit Dunks and Ryan Figure 3 (the wire, however, being stapled to both swing-bars)—did such bed bottoms allow the web to pull out?

A. No, sir.

48 55 Q. Why did you make one swing-bar of Complainants' Exhibit Dunks and Ryan Fig. 3, without stapling the wire?

A. In order to show that the ends of the woven wire can be securely held without staples or hooking by my clamping swing-bar as combined.

56 Q. Before the invention of the device of the patent in suit did you or not ever see, know, or hear of any swinging woven-wire bed bottom?

A. No, sir.

57 Q. Patent No. 241,321 covers, then, the first swinging woven-wire bed bottom?

Defendants' counsel objects on the same grounds and for the same reasons stated to question 53; also the witness can only state so far as he knows personally.

A. Yes, sir.

58 Q. Before your introduction of the swinging of woven-wire bed bottoms how did the bed bottom like the device in patent Defendants' Exhibit D, of Turnbull & Webb (National Wire Mattress Company's bed bottom), sell, both as to quantity and price?

Defendants' counsel objects upon the same grounds and for the same reasons stated to the last previous question.

A. They sold very extensively and for high prices.

59 Q. How do those made like the device in patent to Turnbull & Webb (Defendants' Exhibit D) sell now, and also state as to price now?

Defendants' counsel objects upon the same grounds and for the same reasons stated to question 58.

A. They are sold in limited quantities and at greatly reduced prices.

49 Counsel for defendants gives notice that he will move this honorable court to strike out the last answer and the above previous answers for the reasons stated in the objections to the questions.

60 Q. To what do you ascribe this diminution of sale of the Turnbull & Webb device (Defendants' Exhibit D) and its reduction of price?

Defendants' counsel objects to the question upon the grounds that it is irrelevant, incompetent, and improper; also the question calls for the opinion and for the conclusions of the witness; also it is not legitimate rebuttal evidence; also it is an attempt to prove by comparison the usefulness and value, if any, of the complainants' patented article; also the question as to the manufacture and the sale, the public demand, and the prices of Turnbull & Webb's said structure is not the subject of inquiry under the pleadings; also it is incompetent and improper to prove by the sale and price of other manufactured articles the value or demand of the complainants' said structure, nor does such evidence tend to prove an infringement thereof by the defendants.

A. To the introduction and superiority of my swinging woven-wire bed bottom.

Counsel for defendants gives notice that he will move this honorable court at the proper time to strike out this answer.

61 Q. Which kind sells more generally now, swinging bed bottoms made of woven wire or suspended bed bottoms made of jointed links like the Turnbull & Webb, known as the National Wire Mattress Company's patent, and what is the proportion?

50 Counsel for defendants objects to the question and interposes the same objections as stated in question 60.

A. Swinging woven-wire bed bottoms have the greater sale as far as I know.

Defendants' counsel gives notice that he will move to strike out the answer for the reasons stated in the objections to the question.

62 Q. So far as you know, is there or not any other kind of swinging or suspended bed bottom that sells as well or as extensively as swinging woven-wire bed bottoms?

Defendants' counsel interposes *to* same objections as to question 60.

A. No, sir; I don't know of any.

Defendants' counsel gives notice of like motion to strike out.

63 Q. Which do you sell most of, and what proportion—the swinging woven-wire bed bottoms with swing-bars of two parts, like those in Complainants' Exhibit E, or of three bars, the center bar being a tongue, similar to Defendants' Exhibit 3 Iron Bars?

Defendants' counsel objects upon the same grounds and for the same reasons mentioned to question 60.

A. I manufacture and sell four or five times as many like Complainants' Exhibit E as I do of Defendants' Exhibit 3 Iron Bars.

64 Q. Are there any other kinds of swinging woven-wire bed bottoms made nowadays except the two kinds mentioned in the last preceeding question?

Objected to by defendants' counsel upon the same grounds and for the same reasons as mentioned in question 60.

51 A. None that I know of.

Complainants' counsel offers in evidence U. S. letters patent to M. A. Hunt, dated January 24th, 1882, and the same is received in evidence and marked Complainants' Exhibit Hunt Patent, March 6th, 1888, J. A. S., U. S. com'r.

Certification waived.

Defendants' counsel objects to the evidence as incompetent and immaterial.

65 Q. Have you ever seen any bed bottoms made, sold, or used like the device shown in the Hunt patent, just introduced?

A. No, sir.

66 Q. What do you think is the trouble with that device?

Counsel for defendants interposes the same objections to this question as raised to question 60.

A. It is too heavy, clumsy, and composed of two many inefficient and useless parts, not durable or merchantable.

67 Q. What part of the device in patent 241,321 do you consider as containing the main or important part of your invention?

Defendants' counsel interposes the same objections as to question 60.

A. The clamping upper plate of the swing-bar as combined, by which I was enabled to clamp and swing woven wire in a practical, efficient, merchantable, and durable manner.

68 Q. Do you or not make any bed bottoms having a swing-bar exactly like that of Complainants' Exhibit E, the two bars being of metal and the wire bent over as in that exhibit, and about when did you first do so, if at all?

52 Defendants' counsel objects to the question, and states the same objections as made to question 60.

A. I do; and first made them about January, 1882.

69 Q. Who first made them so, as far as you know?

A. I did.

70 Q. Who first made a woven-wire bed bottom having such ends of the fabric as were between the upper and lower parts of the end rail extended out on the same plane as the body of the fabric?

Defendants' counsel objects and interposes the same objections as to question 60.

A. I did.

71 Q. When did you first make it so?

A. About 1879.

72 Q. Would or would not the wire fabric in Complainants' Exhibit E stay in place without the assistance of the upper bar rivetted to the lower one—that is, would mere hooking in such exhibit keep it there?

A. No, sir; it would pull out under pressure or tension.

73 Q. Is there more or less friction on the bent portion of the wire when the bend is against an iron bar than a wooden bar?

Objected to by defendants' counsel as incompetent, irrelevant, and immaterial.

A. There is more friction when it is bent around iron bars.

74 Q. Against which of the two would it break sooner if drawn?

A. The iron bar.

75 Q. Which of the two is more damaging to the wire—a short, sharp bend or a longer bend?

A. A short bend.

53 76 Q. Which do you suppose could be easier dispensed with—the upper part of the swing-bar or the hooking of Complainants' Exhibit E or stapling of Complainants' Exhibit Dunks and Ryan Figure 3?

Objected to by defendants' counsel as incompetent, irrelevant, and immaterial.

A. The hooking and stapling.

77 Q. The outer bars in Defendants' Exhibit Three Iron Bars, do they or not assist in holding and relieving that bend of the fabric which is on the side of the tongue away from the body of the fabric?

A. They do.

78 Q. Mr. Hard testified to some advantages of an iron lower bar; are there or not any advantages of a wooden lower bar other than you have already mentioned?

A. Yes, sir; a wooden lower bar permits the ends of the woven wire to be stapled thereto; besides it permits the coils or ends of the wire to be pressed into the wood and clamped there by the metal top bar and held securely; besides it is lighter and more flexible than iron.

79 Q. Which is the better manner of holding wire between bars—by nails or screws or by bolts or rivets—and why?

A. Bolts and rivets are best, because they are fastened at both ends rigidly and cannot pull or draw out as nails or screws would under wear or pressure.

80 Q. You testified to-day that the strain or leverage to stretch woven wire to rigid end rails was about 3,000 pounds, and yesterday that woven wire to be stretched in a bed bottom required a tension of about 2,500 pounds; what kind of woven wire did you refer to yesterday in that connection?

A. Swinging woven-wire bed bottoms.

81 Q. To what is the woven wire attached before it is stretched?

54 A. To end bars or end rails or swinging bars.

82 Q. What would be the effect on a narrow wooden bar by such stretching?

A. It would crack, split, and break and allow the wire to pull out at the ends.

83 Q. What is the effect in this respect of rivetting an iron bar thereto?

A. It prevents all this by means of clamping.

84 Q. Why do you attach the woven wire before stretching it?

A. In order to grip the ends of it so as to stretch it into proper tension upon a bed frame.

85 Q. Which is more expensive—spiral spring sacking, as in Defendants' Exhibit A, or woven wire—and as to cost of manufacture?

A. The spiral spring sacking costs more both in material and construction.

86 Q. Has the manufacture and sale of swing woven-wire bed bottoms increased or decreased since your invention of the device of the patent in suit, and to what extent?

Objected to by defendants' counsel for the reasons and grounds stated in question 60.

A. They have increased over 1,000 per cent.

87 Q. Have you or not made the manufacture and improvement of woven-wire bed bottoms a special study; and, if so, for how long and extensively?

A. I have made the manufacture and improvement of woven-wire bed bottoms a special study for about eleven years, and have manufactured during that time more different kinds than any other manufacturer that I know of.

88 Q. Why do you say that swinging woven-wire bed bottoms require less leverage to stretch than woven-wire bed bottoms fastened to rigid end bars?

A. Because the fabric in swinging woven-wire bed bottoms is about one foot shorter than in woven-wire bed bottoms fastened to rigid end bars and requires less leverage to stretch into proper tension.

55 Complainants' counsel, having sent for some patents which he may wish to introduce in evidence in connection with this witness' testimony about them, reserves the right to recall him for that purpose when they arrive.

Cross-examination of the witness by JAMES B. JENKINS, Esq., defendants' counsel:

89 X Q. Please state whether you are one of the persons named in Complainants' Exhibit A.

A. Yes, sir.

90 X Q. Please state whether you make any claim to the undivided one-half interest of, in, and to said alleged invention of C. H. Dunks as described in said Exhibit A.

Complainants' counsel states on the record that the position of the complainants in this case is that they claim whatever rights they are entitled to claim under the exhibits introduced in their *prima facie* case and does not think that the witness should be asked to construe the effect of them; that complainants also claim that Dunks has not an undivided half, having assigned part of it to Elliott and Cougle.

A. No, sir.

91 X Q. What was your business at the time of the commencement of this action, and who, if any one, was associated in business with you at that time, if any one?

Objected to by complainants' counsel on the ground that it is immaterial and irrelevant under the pleadings, and, if intended to show that any one else has rights to the undivided half of the witness in the patent in suit, is too late to be raised at this time; any testimony with reference thereto in that connection complainants' counsel now gives notice that he will move to strike out at the proper time and place.

56 A. I was engaged in the manufacture of woven-wire bed bottoms, spring beds, and bedding with my brother, Joseph H. Ryan, under the style and firm name of the New York Woven-Wire Mattress Company.

92 X Q. State whether said firm last mentioned by you were engaged in the manufacture of the bed bottoms described in Complainants' Exhibit A.

Complainants' counsel objects to the question as wholly immaterial and irrelevant.

A. Yes, sir; substantially the same.

93 X Q. What interest did your brother have in the said alleged patent or the right to manufacture the structure therein described with you as partner or otherwise?

Complainants' counsel objects to the question as wholly immaterial and irrelevant and on the same grounds stated to X Q. 91, and gives the same notice as to such question and testimony therein.

A. He had no interest in the patent, but he had one-third interest in all beds manufactured under said patent.

94 X Q. Please state whether that interest was conveyed or assigned to him in writing or whether the interest and assignment was verbal.

Objected to by complainants' counsel as assuming without proof that there was an interest assigned and on the same grounds as stated to X Q. 91, and the same notice is given as to that X Q.

A. It was verbal.

95 X Q. State whether your articles of copartnership were in writing or were verbal.

57 Complainants' counsel makes the same objections to X Q. 91 and on the same grounds; also as not calling or directed

to anything in the direct examination, and also gives notice as given to X Q. 91.

A. They were verbal.

96 X Q. What was the agreement between you and your said brother in reference to the manufacture, use, and sale of the alleged invention in suit?

Complainants' counsel makes the same objections and on the same grounds as to X Q. 91 and X Q. 95, and gives the same notice of motion as to X Q. 91.

A. He was to have one-third interest in all the net profits derived therefrom.

97 X Q. Please state whether on the 6th day of April, 1887, you were associated or engaged in business with either of the other three complainants.

The same objection and notice by complainants' counsel as to the last previous question and gives the same notice.

A. No, sir.

98 X Q. Please state whether, prior to the commencement of this action, you had sold, conveyed, or assigned in writing or otherwise any part or portion of your undivided interest in the Dunks and Ryan patent in suit; and, if so, when and where is the writing?

Complainants' counsel makes the same objections as to the last preceding question and gives the same notice.

A. Yes, sir; I assigned an interest in said patent to Mr. Newalt and Dreyfus, of Atlanta, Georgia, for the Southern States only, and to no one else for any other part of the Union.

58 99 X Q. You did not, then, have at the time of the commencement of this action a common, joint, and identical claim and interest of, to, and in said letters patent No. 241,321 with the other three complainants to convey, assign, and transfer the same or to manufacture, use, or sell the same to the trade?

Complainants' counsel objects to the question on the ground that it asks the witness, who does not profess to be a lawyer, to construe documents which are for the court to construe and uses technical terms which any layman may misunderstand; also makes the same objections as to the last preceding question and gives the same notice.

A. Yes, sir; I think I had.

100 X Q. Have the other three complainants or either of them, and, if so, which one of them, *have* an identical claim and interest of, to, and in said letters patent and a joint, equal, and identical right to convey, assign, and transfer the same and to manufacture, use, and sell the same to the trade?

Complainants' counsel makes the same objection as to the last question and gives the same notice, and also objects that the witness does not profess to be under examination in a law school as to what effect certain written documents may have.

A. I don't know.

101 X Q. State whether or not on the 6th day of April, 1887, the complainants were all engaged in separate firms or businesses, and how they were carrying on business and in what name or names, if you know, and what the business of each is and where located.

Complainants' counsel makes the same objection as to the preceding question and gives the same notice and as already partly answered.

59 A. There was none engaged with me in business. Mr. Hall is engaged in business for himself and Mr. Elliott and Cougle are associated in business together, all in the city of New York, manufacturing woven-wire mattresses, spring beds, etc.

102 X Q. So far as you know personally—I mean of your own personal knowledge—you cannot say that your copatentee, C. H. Dunks, had not prior to the commencement of this action sold, conveyed, or assigned to defendants the right to manufacture and sell said patented article in the city of New York? Please answer yes or no.

Complainants' counsel makes the same objection to this question as to X Q. 91, and gives the same notice of motion as to that.

A. I don't know.

103 X Q. You do not claim to have and to hold the exclusive right to manufacture, use, and sell said patented article, do you, in the State of New York?

Objected to by complainants' counsel as wholly immaterial and irrelevant, and also on the same grounds as stated to the last preceding question, and gives the same notice.

A. No, sir.

106 X Q. State how recently you have manufactured any of the bed bottoms precisely like and identical with the bed bottoms described in the drawings and specifications of complainants' said Exhibit A.

Objected to by complainants' counsel as immaterial and irrelevant and not definite enough.

A. I consider that I have made some within the present month.

107 X Q. How many bed bottoms precisely like the one
60 described in the drawings and specifications of said exhibit have you made within the last year? And, if you cannot tell the precise number, approximate it and state as nearly as you can.

Complainants' counsel objects to the question as immaterial and irrelevant.

A. I made three or four dozen.

108 X Q. State whether the year previous to that time you made any of said bed bottoms precisely like the one described in said specifications; and, if so, about how many.

Complainants' counsel objects to the question as immaterial and irrelevant.

A. I made a few; I don't remember how many.

109 X Q. State about how many of the bed bottoms precisely like the one described in said drawings and specifications you made in the five years between January, 1882, to January, 1887.

Complainants' counsel makes the same objection.

A. As near as I can remember, about six or seven hundred.

110 X Q. State what you did with those you manufactured as stated in the last three answers.

A. I sold them to the furniture dealers and to the trade generally.

111 X Q. State whether the entire number you manufactured since January 1st, 1882, would exceed 600.

Objected to by complainants' counsel as immaterial.

A. I think it would.

112 X Q. Please state when you first experienced any difficulty and when first you received any complaints or suggestions from the trade with reference to the fastening of the web to the swing-bar as illustrated in the drawings and described in the specifications of Exhibit A.

61 A. In the latter part of 1881.

113 X Q. State how soon after receiving those complaints you commenced experimenting and sought to correct the difficulty by making application to the Patent Department for a patent upon a device similar to the one shown in Defendants' Exhibit 3 Iron Bars.

Objected to by complainants' counsel as assuming.

A. About two months.

114 X Q. State whether the application you made was the one which your counsel yesterday introduced in evidence.

A. Yes, sir.

115 X Q. State whether since you experimented and adopted the 3-bar system you have manufactured substantially the bed bottom embracing the three iron bars.

A. I have made only a few of them.

116 X Q. State the form of construction of the swing-bar bed bottom you have manufactured most within the last 5 or 6 years.

A. I made the kind like that shown in Complainants' Exhibit E mostly.

117 X Q. State the last 2 or 3 years the different kinds of bed bottoms you have manufactured.

A. About a dozen different styles.

118 X Q. For the last five years how many bed bottoms have you manufactured annually of these various styles, giving the number annually?

A. About 25,000 a year.

119 X Q. You may state how long you have been engaged in preparing yourself as a witness to testify in this case.

Objected to by complainants' counsel as wholly immaterial and irrrelevant.

A. About a day altogether.

62 Adjourned to Wednesday, March 7, 1888, at 9.30 o'clock a. m.

NEW YORK, *March 7th*, 1888—9.30 o'clock a. m.

Met pursuant to adjournment.
Present: Counsel as before.

The cross-examination of Mr. RYAN continued by J. B. JENKINS, Esq.:

Complainants' counsel gives notice that he will at the proper time move to strike out all testimony attempting to show a defect of parties or a misjoinder of parties plaintiff, it being too late now to introduce it and having been waived (if true), not being alleged in the answer.

120 X Q. You are not an expert in patent cases, are you?
A. No, sir.
121 X Q. Were you ever sworn as a witness in a patent case before in which you were not a party?
A. I was once before a witness in the case of George E. Hyatt and F. A. Ryan against Charles H. Dunks.
122 X Q. Were you interested in the result of that suit?
A. Yes, sir.
123 X Q. You were not called, were you, as a professional expert witness in that suit?
A. No, sir.
124 X Q. You have not as a professional expert made the state of the art a study, have you?
A. No, sir.
125 X Q. When and where did you commence the manufacture of bed bottoms, and in what capacity, whether as a manufacturer or employee?
A. In Chicago, in 1877, as a workman in the woven-wire factory of John Matteson.
63 126 X Q. What had been your business prior to that time, and how long had you worked at it?
A. My business was that of a farmer up to about that time.
127 X Q. Prior to 1877 you had had no experience as a mechanic, had you?
A. No, sir.
128 X Q. How long did you work as an employee in and about the construction of bed bottoms after your commencement, in 1877, with John Matteson?
A. About six months.

129 X Q. What branch of the business were you engaged in during the period you worked for Mr. Matteson?

A. I worked at all the different parts of woven-wire mattresses exclusively.

130 X Q. Where did you next work, and with whom, and how long, and at what?

A. I commenced the manufacture of woven-wire bed bottoms on my own account in Chicago immediately after leaving Matteson, and up to the time of coming to New York city, which was in 1879, and I carried on the manufacture of woven-wire mattresses since.

131 X Q. You never worked, then, at any other trade than the making of bed bottoms?

A. No, sir.

132 X Q. And you are not a practical mechanic in the broad sense of that term, and only such in the manufacture of bed bottoms?

A. No, sir.

133 X Q. Calling your attention to your direct answers Nos. 5 and 7, have you ever seen manufactured, sold, or used any bed bottoms or structures described and illustrated in Defendants' Exhibits A, B, C, and D?

A. I have never seen any like Defendants' Exhibits A, B, or C.

134 X Q. State whether or not those structures referred to in your last answer had gone out of the trade, so far as you know, before your alleged invention and before you commenced manu-
64 facturing your said bed bottoms.

A. I never saw any of them, and presume they had.

135 X Q. Do I understand you to say that you had never seen a bed bottom such as is described, illustrated, or patented in either one of Defendants' Exhibits A, B, and C?

A. Yes, sir.

136 X Q. Then, as matter of fact, you never tested the quality, durability, and operation of either of those structures A, B, and C?

A. Separately I have tested the different materials of which those bed bottoms are composed.

Counsel for defendants will move this honorable court at the proper time and place to strike out said answer as not responsive to the question.

137 X Q. Then, as a matter of fact, you never tested the quality, durability, and operation of either of the structures described and illustrated in Defendants' Exhibits A, B, and C as therein combined and manufactured?

A. No, sir.

138 X Q. State what you claim to be the new thing shown in the said bed bottom described in the specifications and illustrated in the Dunks and Ryan patent in suit.

A. A swinging woven-wire bar as shown and therein combined.

139 X Q. What do you mean by swinging woven-wire bar in your last answer?

A. I mean a vibrating bar suspended from and to something as therein combined.

140 X Q. The invention, then, if any, consists in the construction and use of a swing-bar as described in the specifications annexed to and forming a part of the patent in suit?

Complainants' counsel says that the patent claims speak for themselves and the court is the proper authority to construe what they cover.

65 A. As therein combined it does.

141 X Q. You do not claim, then, the wire fabric as a part of your invention?

Complainants' counsel makes the same objection as to the last preceding question.

A. As therein combined I do.

142 X Q. State whether or not wire fabric used by you in said bottom in suit was in common use many years prior to your alleged invention and used generally by manufacturers of bed bottoms without restraint and whether it has not ever since been in free, common use by manufacturers.

A. Yes, sir.

143 X Q. The prior patents upon said woven-wire fabrics had expired many years before you commenced manufacturing the bed bottom in suit?

A. Yes, sir.

144 X Q. Please explain, then, how you claim that your said patent covered the woven-wire fabric which had for so many years prior to your invention been in free and common use.

Complainants' counsel objects to the question as assuming what the witness has not testified to.

A. It only covers the woven-wire fabric as combined in my patent.

145 X Q. The spiral springs used by you in your bed bottoms are called helical springs, are they not?

A. Yes, sir.

146 X Q. How long prior to your alleged invention in suit had the helical springs been in free and common use?

A. A great many years, and they have been ever since.

147 X Q. You do not claim, do you, that your said application for a patent upon a swing-bar covered also the helical springs or the wire fabric used in your said bed bottom?

66 Complainants' counsel makes the same objection to this question as to X Q. 140 and as assuming to construe the claim which is for the court.

A. As therein combined, I do.

148 X Q. Please explain to the court what you mean by the statement in your last answer as therein combined.

A. I mean the combination with an end rail of the links or springs, a section of woven-wire fabric, and an intermediate connecting trans-

verse bar provided upon one edge with a throat adapted to receive the ends of the wire and upon the opposite side with means for attaching the links or spring as shown in my patent.

149 X Q. You do not, do you, claim anything more in your patent than what your specifications specifically stated, do you?

Complainants' counsel makes the same objection as to X Q. 140.

A. Yes, sir; I claim all substantial substitutes performing substantially the same functions and in substantially the same way as the different parts shown, described, and combined in my patent.

150 X Q. Calling your attention to Defendants' Exhibit B, C, and D, state whether or not helical springs are used to connect the fabric with the rigid end bar or bed frame. Please answer yes or no.

A. It is.

151 X Q. Now, referring to Defendants' Exhibits A, B, and C, state whether or not you find a swing-bar or rods between the helical springs and the web.

A. Yes, sir.

152 X Q. Referring to Defendants' Exhibit B, do you not find the swing-bar connected by helical springs to the bedstead at either end thereof and the other side connected with the web of the bed?

A. Indirectly, I do.

67 153 X Q. State whether or not the swing-bars on Defendants' Exhibit B are not directly connected with the helical springs on one side and the web on the other.

A. No, sir; they are attached directly to the eye-hooks.

154 X Q. State whether the figure in Defendants' Exhibit B shows that they are connected by eyes screwed into or fastened to the swing-bar.

A. They are, in my opinion, eye-hooks screwed into the end bars.

155 X Q. The patent provides, does it not, for eyes or hooks or loops?

A. Yes, sir.

156 X Q. While the spring bar in Defendants' Exhibit B connects the same with the helical springs by means of eyes, hooks, or loops, the swing-bar in the patent in suit is connected with the helical springs by means of holes in the metallic plate, is it not?

A. Yes, sir.

157 X Q. While the web in Defendants' Exhibit B is connected with the swing-bar by means of eyes, hooks, or loops, the web in the patent in suit is connected with the swing-bar by being lain upon and nailed or fastened to the lower wooden bar covered by metallic bar and the two bars riveted together, is it not?

Complainants' counsel objects to the question as attempting to construe the patent in suit, which is for the court.

A. Yes, sir.

158 X Q. So that the bars mentioned in your last answer in Defendants' Exhibit B and in the bed bottom in suit may both be called and are, in fact, swing-bars?

A. Yes, sir.

159 X Q. Now, your claim to invention is a swinging bar in a bed bottom, is it not; or, in other words, it is an intermediate connecting transverse bar between the woven-wire bed and the helical springs to which each are connected, the bar being provided upon one edge with a throat adapted to receive the ends of wire and upon the opposite side with holes or means for attaching the links or springs, is it not?

68

Complainants' counsel makes the same objection to this question as to X Q. 140, and as already fully answered.

A. As therein combined—yes, sir.

160 X Q. What do you mean by a throat in that connection?

Complainants' counsel makes the same objection as to last preceding question, and also that the patent is the best evidence and speaks for itself.

A. I mean the opening between the bars as therein shown and combined.

161 X Q. As I understand it, the throat, as you term it, is formed by simply placing the wire web on the upper surface of the wood slat or bar and by placing the metal bar over the wooden bar and wire ends of the wire web and then rivetting the two bars firmly together. Am I correct?

A. Yes, sir.

162 X Q. Under your claimed invention, the woven-wire fabric, which was theretofore and since has been in free and common use, is secured to the upper face of the wooden slat or bar by means of suitable pins; the metal bar is placed over that and secured by rivets, bolts, or other analogous devices, the upper bar being provided with holes to receive the helical springs. Am I substantially correct in that statement?

Complainants' counsel makes the same objection to this question as to X Q. 140 and X Q. 160.

A. Yes, sir.

163 X Q. And that is all of your claimed invention, is it not?

69

Complainants' counsel makes the same objections as to the last preceding question.

A. As combined and shown in my patent it is.

164 X Q. Calling your attention to Defendants' Exhibit Dunks and Ryan Swing-Bar, and also to figure 3 of the drawings accompanying the Dunks and Ryan patent in suit, please state whether said defendants' exhibit is not made in substantial compliance with said figure 3 in said drawings, the under part of the wood bar being oval or rounded to some extent?

A. No, sir; the defendants' lower bar, as shown in their exhibit, has a groove or slot cut out of its face or upper side next the ends of the woven-wire fabric, while my bar, as combined in my patent,

is smooth and level on its upper face; otherwise the bars are similar.

165 X Q. With the exception named by you in your last answer, the 2 are substantially the same, are they not?

A. Yes, sir.

166 X Q. State whether or not Complainants' Exhibit E is a fair representation on its upper surface, from end to end, of the upper surface of the bed bottom mentioned and described in the letters patent in suit and as shown by figure 1 in drawings?

A. Yes, sir.

167 X Q. And do the positions of the helical springs and the upper portion of the swing-bar and the rivets shown in said Exhibit E fairly represent and illustrate the position of the helical springs and the upper portion of the swing-bar and the rivets shown in figure 1 of your drawings forming part of said patent?

A. Yes, sir.

168 X Q. Now, I show you Complainants' Exhibit E and ask you whether or not the helical springs and the upper bars and the rivet heads are not higher and above the upper surface of the web.

70 A. The upper surface of the helical springs is all that is above the upper surface of the fabric.

169 X Q. Is not the upper bar on top of the ends of fabric, and are not the rivet heads on top of the upper bars, so that when the bed is in use the upper bars and the rivet heads will be above the surface of the fabric to the extent of the thickness of the bar and the thickness of the rivet heads?

A. The upper bars and rivet heads are only above the clamped and flattened ends of woven-wire mattress, and not above the body or upper surface of said mattress.

170 X Q. The helical springs being above the surface of the web, and the upper bars of the swing-bar being above the flattened ends of the web, and the rivet heads being on top of the upper bars, state whether the bed bottom as a whole from end to end does not present an unsmooth upper surface.

Complainants' counsel objects to the question as assuming what the witness has not testified.

A. To a limited extent; yes.

171 X Q. Now, calling your attention to what you are pleased to call the throat of the swing-bar, please state whether any part or portion of said throat across its entire width is not open.

A. Yes, sir.

172 X Q. And you may also state whether some part or portion of the rivet head does not lay off from or above the upper surface of the swing-bar.

A. Yes, sir; the head does.

173 X Q. On your direct examination you testified that some part or portion of the material used in the bed bottoms of Defendants' Exhibits A, B, and C were receptacles of dust, vermin, and infection. You may state what part or portion of said bed bottoms present such receptacles.

A. The wooden bars and straps as shown in Defendants'
71 Exhibit A and the bed cords, bottom slats, and wooden swing-bars in Defendants' Exhibit B, the canvas or cloth bottom cords and wooden swing-bars in Defendant's Exhibit C.

174 X Q. Please state why and how they are receptacles of dust, vermin, and infection.

A. Because they contain cords, straps, and canvas or cloth bottoms in connection with wooden swing-bars and rods.

175 X Q. Look at Defendants' Exhibits A, B, C, and D and stat to the court what there is in the swing-bars themselves which should form or create receptacles for dust, vermin, and infection, if any.

Complainants' counsel objects that no evidence of a swing-bar in Defendants' Exhibit D appears; also that the question has been substantially answered.

A. The swing-bars shown in Defendants' Exhibits A and C show wooden bars or rods around which is wound or wrapped canvas, cloth, or straps, leaving a space between said bars or rods sufficiently large for bugs and vermin to harbor in as well as the reception of dust, and the wooden bars in Defendants' Exhibit B are large and will contain a great deal of dust on their outer surface or protect vermin on their under surface.

176 X Q. And yet you testify that you never saw manufactured, sold, or used either of said frames or bed bottoms, and that you never saw one of them in your life, do you not?

A. Yes, sir.

177 X Q. Then your answer that they are harbors for dust, vermin, and infection is based not upon a personal inspection of said bed bottoms or of actual knowledge, so far as they are concerned, but is a mere opinion of yours, is it not?

A. My answers are given from personal experience by having used all the different parts of which these bed bottoms are constructed.

72 178 X Q. Now, on account of the spaces mentioned by you between the wooden and iron bar in the bed bottom in suit and the open throat of said swing-bar in suit, and the fact that one of said bars is a wooden bar, state whether or not the same do not form and create in their open spaces, as testified to by you, receptacles for dust, vermin, and infection. Please answer yes or no.

A. They will contain dust, but the cold surface of wire and metal as combined in my patent are not subject to vermin or infection.

179 X Q. State the difference between the wooden bars in Defendants' Exhibits A, B, and C, if any, from the wooden bar in the swing-bar in suit, and whether they are made of the same material or kind of wood and all subject to the same test in regard to harboring dust, vermin, and disease.

A. They are not alike in construction, and cannot answer as to the different quality of wood used in their construction, and cannot answer in regard to their tendency in comparison to mine in regard to vermin or infection.

180 X Q. Look at the drawing in Defendants' Exhibit B and state

whether the swing-bar has not smooth surfaces with no open spaces in them or covering over them by the web, and state whether the bar is not less liable to be a harbor of vermin and disease than the swing-bar in the patent in suit, with its open throat and spaces, as testified to by you.

A. No, sir; it has a large, open wooden surface and will retain dust, infection, and vermin on account of its wooden fibre, whereas the clamping top bar of my swing-bar is of a metal fibre or substance and covers and protects the lower wooden bar as attached thereto.

181 X Q. Please state what you mean in the last answer by open wooden surface, and also state whether the open wooden surface, as you term it, is not flat and smooth, containing no holes on its upper or lower surface.

73 A. I mean by open wooden surface an unprotected and uncovered surface of wood, which is liable at any time under strain or pressure to become a bug harbor, also vermin, by means of its cracking, splitting, and liable to infection by rotting and decaying and retaining moisture.

181½ X Q. What you have said in the last answer in regard to wooden bars will apply equally to all wooden bars used in bed bottoms, would it not?

A. Not if combined with other substances, as shown in my combination swing-bar.

182 X Q. Referring to the specifications, and particularly to the swing-bar in the patent in suit, it provides for one or more wooden bars, but by preference you use one wooden bar and one metallic bar. Is that so?

A. Yes, sir.

183 X Q. Do you mean to be understood that on the combined swing-bar in the bed bottom in suit that the lower surface of the upper bar lies flat and smooth upon the upper surface of the wooden bar, so that the throat, as you are pleased to call it, is entirely closed and that no spaces intervene between the two bars?

A. No, sir.

184 X Q. You stated a few moments ago that before you got through with this examination that you would make the bed bottoms shown in said Defendants' Exhibits A, B, and C rotten bug-holes. Did you desire that statement to go upon the record?

A. I did not make any such statement.

185 X Q. Then you did not mean to be understood as making a statement of that character?

A. No, sir; I did not use any such words.

186 X Q. You stated in one of your answers with reference to the underlying portion of the wooden swing-bar in one of said Exhibits A, B, or C that it would be a harbor for dust and bugs. Please state whether the underlying portion of the wooden bar of the patent in suit would not equally be a harbor for dust and bugs.

A. If made as shown in defendants' exhibits just mentioned and combined with the other very objectionable and filthy material it would.

74 187 X Q. Independent of the other material of the bed bottom, and confining yourself to the wooden swinging bar alone, if the bar was made of sound, seasoned, and proper material to go into a bed bottom and did not crack or split, would it then be a receptacle for vermin and disease?

A. Yes, sir; because all wooden bars have a certain amount of latent heat composed in their fibres and invite as well as create certain insects and vermin.

188 X Q. Is it the sound, seasoned wood itself that creates insects and vermin or is it the dust and dirt that accumulates about it that creates insects and produces vermin and disease?

A. It is both.

189 X Q. If a large amount of dust and dirt is permitted to accumulate about the wooden structure and bars of a bedstead would not the same create insects, vermin, and infection?

A. Yes, sir.

190 X Q. That would apply to all wooden structures, would it not, where the same were permitted to remain in the usual warmth of a dwelling and used and occupied for sleeping purposes by human creatures?

A. Yes, sir.

191 X Q. The throat and the open spaces testified to by you as existing in the swing-bar in question, when in daily use and occupied for sleeping purposes in comparatively warm rooms, if not kept properly cleansed, would be a receptacle for dust, dirt, and filth, would it not?

A. Yes, sir.

192 X Q. Your answers to the several questions put to you with reference to the receptacles of dust, vermin, and infection apply more particularly to the fabric of the bed bottom than to the naked wood used for swing-bars, do they not?

A. No, sir; they apply more particularly to swing-bars as combined in those different exhibits.

75 193 X Q. Is it necessary that bed bottoms should be constructed alike and of the same material to create receptacles for dust, vermin, and infection, or will vermin and infection spring from any form of construction in a bed bottem kept reasonably warm where dust and filth are permitted to accumulate?

A. Vermin and filth will exist wherever dirt and filth is allowed to remain in a warm temperature.

194 X Q. Referring to your answer in which you state that the upper surface of the bed bottom in suit is uneven, state *whatever* the bedding will not first come in contact with those parts of the bed bottom which are highest.

A. It will.

195 X Q. State whether those elevations and unsmooth or rough surfaces, as the elevation of the springs and the heads to the rivets, etc., would not have a tendency to wear the bedding to a greater extent than if the entire bed bottom was level and smooth.

A. No, sir.

196 X Q. The pressure when the bed is in use will fall first on that

part or portion of the bed where it is elevated above the plane of its surface, will it not?

A. Yes, sir.

197 X Q. The friction or the wear in the bedding would be greater, would it not, in those places where the one part of the bed bottom extends up higher than another portion of the bed bottom?

A. It would if the entire bed bottom was composed of the same material upon its surface.

198 X Q. Supposing it was not composed of the same material, but was composed of a more inflexible and unyielding material, such as the heads to rivets and the helical springs, how would it be?

A. If said helical springs—heads of rivets—were equally smooth on their upper surface with the balance of the bed bottom, the bedding would wear smoothly over all.

199 X Q. What is the office and the operation of the swing-bar in your said patent?

A. It is to enable one skilled in the manufacture of woven-
76 wire bed bottoms to clamp and swing woven wire from end springs, as shown and combined in my letters patent No. 241,321; in order to produce a durable, flexible, and elastic woven-wire bed bottom by swinging the same longitudinally from flexible vibrating swing-bars for the purpose of bed bottoms.

200 X Q. The bar itself, being composed of iron and wood, is a rigid bar, is it not, in itself, not flexible nor yielding?

A. No, sir.

201 X Q. It is only yielding when used in the bed bottom with helical springs on one side and woven wire on the other, is it?

A. Yes, sir.

202 X Q. How?

A. Because it is flexible.

203 X Q. How is it flexible?

A. Because the material therein combined is of a springy nature and made sufficiently light to have flexibility when strained or pressed upon.

204 X Q. Do you say that an iron bar firmly riveted to a wooden bar is springy and flexible?

A. When made as combined as described in my patent it is.

205 X Q. What do you mean by its being a vibrating bar?

A. Because it can be moved longitudinally, transversely, or perpendicularly through space.

206 X Q. It can only be moved, as stated by you, by the yielding and by the flexibility of the woven-wire web and the helical springs, can it?

A. Pressure, strain, or tension brought to bear upon it directly or indirectly of any kind will move it.

207 X Q. When the bed bottom in suit is in use what portion of the bed bottom sags most?

A. I never saw it sag at all.

208 X Q. When the bed is in use in what portion of it is the pressure the greatest?

A. About its center longitudinally.

209 X Q. Which part of the bed bottom when under pressure vibrates the most when used ordinarily?

77 A. About its center.

209½ X Q. And which part of the bed bottom is the most yielding while in use?

A. Its center.

210 X Q. While in use you may state where there is more or less motion in the web by moving up and down.

A. About its center.

211 X Q. And how does that motion operate upon the spring-bar?

A. It pulls from it.

212 X Q. And there is more or less working up and down of the spring-bar while in use, is there not?

A. Yes, sir.

213 X Q. And there is more or less friction between the bar and the web near where the web is fastened to the bar while in use on account of its upward and downward tendency?

A. Yes, sir.

214 X Q. What prevents the friction between the bar and the web from breaking the ends of the wire as quickly and as readily as in the other bed bottoms testified to by you on your direct examination?

A. My vibrating and elastic double-clamping swing-bar, as shown and described in my patent.

Adjourned to Thursday, March 8th, 1888, at 9.30 o'clock a. m.

NEW YORK, *March* 8, 1888—9.30 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

The cross-examination of Mr. RYAN continued by J. B. JENKINS, Esq.:

215 X Q. What is there in the friction between the web
78 and the inflexible bar that makes the web last three or four times as long as it would if no swinging bar was used? Please explain.

A. There is nothing in the friction.

216 X Q. What is there in the swing-bar that will make the web last three or four times as long as it would if no swing-bar was used, if anything?

A. Because a swing-bar as shown and combined in complainants' patent is both flexible, elastic, and durable.

217 X Q. As a matter of mechanics, would not the rising and falling, the working and friction, of the swing-bar throw a greater strain on the ends of the web next to the bars and the working backwards and forwards when the bed is in use make the web more liable to break and pull out than if no swing-bar was used?

A. No, sir; because the ends of the web rise and fall, draw back-

wards and forwards in unity and conjunction with the flexible swing-bar in motion.

218 X Q. Is it not a fact that the interposition of the swing-bar straightens out and holds firm the wire web and makes it more firm and less inflexible?

A. No, sir.

219 X Q. The flexibility proceeds, does it not, principally from the woven wire and from the helical springs?

A. As combined in my swing-bar, yes.

220 X Q. And neither the woven wire nor the helical springs, taken separately and by themselves, form any part of your claimed invention?

A. Unless used as combined in my patent they do not.

221 X Q. Are you familiar with the celebrated Hard, Brother and Company's woven-wire mattress, suspended from the upper bowed bars of the frame from end to end, without the intervention of either swing-bar or helical spring, patented Nov. 13, 1883?

A. Yes, sir; I have seen some of them.

79 222 X Q. That bed bottom is free, is it not, from the sagging and difficulties you mentioned in answer 11 on direct?

Complainants' counsel objects to the question as immaterial and irrelevant.

A. In my answer to question 11 on the direct I spoke in reference to the different kinds of swing-bars and not to rigid end bars as shown in Hard Brothers' patent and as shown substantially in Defendants' Exhibit 2 Wooden Bars.

223 X Q. When was your attention first called to Defendants' Exhibits A, B, and C and the frames therein described?

A. About three weeks ago.

224 X Q. You never made a bed bottom like either of the ones described in A, B, and C?

A. No, sir.

225 X Q. In your direct answer 11 you say you tried to utilize single bars or rods similar to those used in Defendants' Exhibits A, B, and C and found them impracticable, and yet you say in your direct answers 5 and 7 that you never knew that such bed bottoms were in existence, and also you have stated that you never saw one of either; that you never experimented or used or tested either, and in your last cross-answer you state that you never made one of either. State whether you intended to have your answer No. 11 direct and to apply directly to the bed bottoms A, B, and C or whether you meant to be understood that you had experimented on various swing-bars and did not make a success of it.

A. My answer to question eleven had reference only to various experiments with swing-bars similar to those shown in Defendants' Exhibits A, B, and C and had no reference to their particular bed bottoms as combined in their various exhibits.

226 X Q. You say in answer eleven that in your experiments you tried to fasten the web over the end bars like Defendants' Ex-

hibit Two Wooden Bars, but it would wear and tear the bed-
80 ding. Please state how you in your experiment fastened the same and how it would wear and tear the bedding if the ends of the woven-wire fabric were drawn over the upper surface of the head and foot bars of the bedstead and frame and secured to the outer side or surface of said bars or frame.

A. Because I had to hook the ends of the end springs to the upper or outer bar of said bars, and the springs so fastened stood higher or projected over the top surface of said bars and split the bars when strained into tension, and in this manner injured the bedding.

227 X Q. In said direct answer 11, then, you had no reference to the mode and manner of securing the web to the end rigid bars as secured and illustrated in the Hard Brothers and Company board bar frame and as illustrated in his patent heretofore referred to?

A. My answer to question 11 has reference to above bars only as far as their weight and clumsiness would be objected to when used as swing-bars.

Counsel for defendant- offers in evidence letters patent of C. H. Hard, No. 288,431, patented November 13, 1883. The same is received in evidence and marked Defendants' Exhibit Hard's Bowed Bar Patent, March 8, 1888, J. A. S., U. S. com'r. Certification waived. Complainants' counsel objects to the patent offered as immaterial and irrelevant.

228 X Q. Referring to the securing of the wire bed bot- to the end rail, please state whether the web would be more liable to pull out if secured by being drawn over the upper surface of the rail and bent down upon the outer end thereof and there firmly secured than it would if drawn upon and firmly secured to the upper face, being on a horizontal plane with the bed bottom, or would the latter be more liable to pull out under pressure than the former?

81 A. The latter would be more liable to pull out, but the former more liable to break under tension or pressure.

229 X Q. Calling your attention to Defendants' Exhibit 2 Iron Bars, which shows that the web runs between and through the two iron bars and the ends of the web are bent down over and around underneath the lower iron bar, forming a hook, please state whether the web would be more liable to break secured in that way than it would if it was lain upon the upper face of a lower wooden bar and secured thereto by nailing or otherwise, with the upper bar lain upon and firmly secured to the wooden bar; and, if so, explain if it is more liable to break, if you can.

A. If both the above respective bars just mentioned were clamped by means of bolts and rivets one would be no more liable to break the wire than the other.

230 X Q. Referring to your second last previous answer, in which you say that the web is more liable to break if bent over the upper face of the bar and secured to the outer end thereof, will you describe to the court why it would be more liable to break than it

would be if secured to the face of said bar on a horizontal plane with the bed bottom?

A. Because in the former method the wire is strained over the sharp edge of the outer bar and at right angles, while in the lat-er method it is fastened and drawn into tension from a plain longitudinal surface.

231 X Q. Supposing the angle mentioned by you in the last answer is rounded and smooth, and taking that in connection with the elasticity of the wood and its flexible nature, would, then, the web be liable to break if the web was made of proper material?

A. No, sir.

232 X Q. Why do you call your bar a clamping swinging bar?

A. Because it grips and clamps the ends of the wire fabric firmly together by means of rivets or bolts and is suspended between and directly from woven wire and end springs.

82 233 X Q. It only grips and clamps the woven wire by placing one bar over the other, the fabric being between, and riveting the two bars firmly together, does it?

A. Yes, sir.

234 X Q. Why do you use two bars instead of one as first mentioned in the specification at line 35, page 1, of the patent in suit?

Complainants' counsel objects to the question as construing and also asking for a construction from a non-expert witness of the patent in suit, and also as not a fair construction in view of the very exact and precise nature of the claims which are in reality the patent itself.

A. Because I, like all my predecessors in the manufacture of woven-wire bed bottoms, found it a practical impossibility to swing woven wire from single bars of any kind in a durable and merchantable manner.

Counsel for defendants will move at the proper time to strike out that portion of said answer which is not directly responsive.

235 X Q. Why did you subsequently use three bars instead of two?

A. I used three bars in some of the swing bed bottoms I manufactured in order to supply and comply with the wants of certain furniture dealers.

236 X Q. Why did you wind the web around the tongue or third middle bar?

A. In order to cover up the ragged under ends of the woven wire as shown to stick out in Defendants' Exhibit 2 Iron Bars.

237 X Q. And was it not done also to more firmly secure the web and prevent it from pulling out?

A. No, sir.

83 238 X Q. Referring to your direct answer 13 in reference to the pulling out of the web, the web would not pull out, would it, if properly attached and secured to the end bars as in the Hard patent heretofore referred to by you to-day?

A. The Hard patent, as I understand it, has double end bars of strong and heavy wood, and, if so, would hold the wire firmly.

239 X Q. As to whether the web would pull out depends upon the size and soundness of the wooden bar and the manner of firmly securing the web to it, would it not?

A. Yes, sir.

240 X Q. When and where and in what manner did you ever test the required strain to get the proper tension of the bed bottom described in Defendants' Exhibits A, B, C, and D or either of them, and by what apparatus?

A. The bed bottom shown and made identically like those shown in Defendants' Exhibits A, B, and C I never saw or tested, but those shown in Defendants' Exhibit D I tested in my own factory about 7 years ago by getting a pressure and strain used in stretching out one or more of their end springs.

241 X Q. The required strain to get the proper tension depends, more or less, does it not, upon the material which forms the fabric?

A. Yes, sir.

242 X Q. When and where did you investigate the art, if at all, to ascertain whether the swing-bar in the bed bottom in suit was the first and only swing-bar known to the trade in this or foreign countries that holds woven-wire bed bottoms?

A. I ordered a search made in order to ascertain if there was any such swing bottoms patented in this or foreign countries, and made enquiry through different manufacturers to know if they had ever seen or made any such or similar bed bottoms before applying for a patent. The searches above referred to were made only at the patent offices of the United States, England, Germany, and France.

84 243 X Q. Referring to your direct answer No. 17 and to Defendants' Exhibit B, state when and where you experimented, if at all, to ascertain whether the eye-hooks mentioned by you would draw out and how their eye-hooks were secured, whether by driving in, screwing in, or otherwise.

A. In my own factory and upon woven-wire cots. The eye-hooks, being screwed therein, often drew out after the wood became thoroughly dry and seasoned.

244 X Q. And that is what you meant in your direct answer No. 17, in reference to the eye-hooks drawing out, without reference to how they were secured in Defendants' Exhibit B and without knowing the kind or quality of the bars used in that exhibit by the inventor?

A. So far as my answer to question 17 relates to eye-hooks in wooden bars, it does.

245 X Q. And yet you never saw one of the bed bottoms in question and don't know how the eye-hooks were secured or whether the wooden bar was thoroughly seasoned or was green, but your answer related to your experiment with other bars, not thoroughly seasoned, and eye-hooks screwed therein by yourself or under your direction?

A. Yes, sir.

246 X Q. Having stated that you never saw one of the swing-bars in Defendants' Exhibit B, are you able to state the exact size of the swing-bar, or the kind or quality of the wood, or how the eyes or hooks were secured, or whether the eyes or hooks were elevated above the springs in such a manner as to wear and tear the bedding?

A. My answer to question 17 was given from my observation and practical experience in the use of similar bars or other similar purposes, and I did not state that the eye-hooks projected above said springs so as to tear or wear the bedding.

Counsel for defendant- gives notice that he will move at the proper time to strike out said answer, as evading the question and not responsive to it.

85 247 X Q. The same question is again put to the witness, and the court is asked to read the same to the witness without again reducing it to writing, with the further addition, to wit, please answer yes or no.

A. I have never seen the particular bar as combined and above mentioned and do not know its exact size, quality of wood, or size of hooks, or whether the same is elevated above springs or not, only by its description and drawings in said patent, Defendants' Exhibit B.

248 X Q. State whether the description and drawings in Defendants' Exhibit B gives the size of the swing-bar, the material used, or how the hooks or eyes are secured, or their size, or whether the hooks are elevated above the springs.

Complainants' counsel objects to the question on the ground that the patent speaks for itself.

A. Only from observations in said patent by means of said drawings therein shown.

249 X Q. How do you know that the swing-bar in Defendants' Exhibit B is thicker than the two bars composing the swing-bar in the patent in suit?

A. I judge of its size by the manner in which it is there combined.

250 X Q. You do not, however, know its exact thickness or whether the eyes or hooks are not so adjusted in the bar as to bring the web on a horizontal plane with the upper surface of the swing-bar?

A. Only from my observation from the drawings in said patent.

251 X Q. Please point out to the court what there is in the bed bottom described in Defendants' Exhibit C, which you never saw, as above stated, which allows the springs to wear and cut through the canvas, destroying the bed bottom.

A. The springs, as combined in said drawings, are hooked around the swing-bars from the top, and therefore make a rough surface, not being level with the body of the bed bottom.

86 252 X Q. The springs in the bed bottom in suit are higher than the web, and therefore make a rough surface, not being level with the bottom of the bed bottom. Is that so?

A. Yes, sir; they set up a little above the surface.

253 X Q. The spiral springs are placed substantially in the same position in said Exhibit C and serve substantially the same office as the spiral springs in the bed bottom in suit, do they not?

A. Yes, sir.

254 X Q. In your direct answer No. 19 you say that the wood bars in its original state contains knots, checks, splits, and unsound spots and very liable to warp and twist all out of shape. Are you able to state that the bars used in said exhibit or in either of the bed bottoms described and illustrated in Defendants' Exhibits A, B, and C contain wood in its original state or whether they contain knots, checks, splits, and unsound spots, having never seen either of them as you have stated?

A. I have never seen the particular bars above mentioned, but speak from my experience with similar bars in use.

255 X Q. Do you know whether the material used in the swing-bars mentioned in said three exhibits was or is different or inferior to the wood bars mentioned in the patent in suit?

A. Yes, sir; the material is inferior.

256 X Q. How can you say that when you do not know, as you have stated, what wood material was actually used in the bed bottoms of Defendants' Exhibits A, B, and C — was inferior to the wood material in the swing-bar of the bed bottom in suit?

A. Because I know from the fact that the swing-bars of the patent in suit are composed of both wood and metal as therein shown and combined.

257 X Q. Do you know as a matter of fact whether the wood material used in the swing-bars mentioned in said three Exhibits A, B, and C was or is different or inferior to the wood portion of
87 the swing-bar described in the patent and specifications thereto annexed, which is the subject-matter of this action? And, if so, state whether you know from actual knowledge by having seen and examined the same.

A. I have never seen or examined the particular swing-bar as shown in Defendants' Exhibits A, B, and C, but have examined and combined my own and know it to be superior in my combination.

258 X Q. How do you know it to be superior?

A. Because in my combination wood is stronger than in theirs.

259 X Q. Did you ever see theirs and know its kind or quality? Please answer yes or no.

A. No, sir.

260 X Q. Did you mean to be fair and honest with yourself and with this honorable court when you testified on your direct examination that the bars in Defendants' Exhibit C, which you had never seen, contain knots, checks, splits, and unsound spots, referring to your direct answers, and particularly to your direct answer 19?

A. In my answer to question 19 I didn't state that those particular bars positively contained the above defects, but that wood in its original state had those tendencies, and that is the way I wish to be understood.

261 X Q. How did you arrive at the conclusion that the bed bot-

toms mentioned in Defendants' Exhibits A, B, and C were inferior and not so desirable to the one in suit when you had never seen either one of them nor used, sold, nor tested them or either of them?

A. From my knowledge as a manufacturer of the various and different substances of which they are composed and as combined and shown in the drawings and specification of said exhibits.

262 X Q. It is not a fact that all the testimony you have given in reference to the bed bottoms and the swing-bars described and illustrated in Defendants' Exhibits A, B, and C has been in reference to bed bottoms and swing-bars you never used, experimented
88 with, tested, or even seen? Please answer yes or no.

A. No, sir.

263 X Q. You do not dispute the fact that you never used, experimented with, tested, or ever saw either of the bed bottoms or the swing-bars mentioned in the last previous question?

A. I have saw and experimented with swing-bars as I understood it in the last question.

Counsel for defendants gives notice that he will move this honorable court at the proper time and place to strike out said answers as not a proper or responsive answer to said question.

264 X Q. I again ask you, do you dispute the fact that you never used, experimented with, tested, and never saw either of the bed bottoms or the swing-bars mentioned and described and also illustrated in Defendants' Exhibits A, B, and C? Please answer yes or no.

A. No, sir.

265 X Q. When you testified that these same bed bottoms described in defendants' said exhibits had a dead, jerky motion, and that they soon sag and wear out, having no durability or elasticity, you knew as matter of fact that you had never used, seen, or tested the three bed bottoms in this question referred to? Please answer yes or no.

A. I never saw any of these particular bed bottoms, but I saw similar material of which they were constructed and know its nature.

266 X Q. When you testified that the straps used in one of said three bed bottoms will wear, crack, cut, and break under strain as made and applied in bed bottom Defendants' Exhibit A, you knew as matter of fact that you had not seen one of said bed bottoms?

A. No, sir; I had not seen said bottom.

267 X Q. As matter of fact, you knew nothing of the workings, the usefulness, and the operation of the bed bottoms in Defendants' Exhibits A, B, and C, as they were constructed and combined by the inventors?

89 A. Only from my practical experience in using similar materials for other and similar purposes.

268 X Q. And while you have been testifying to the superiority of woven-wire bed bottoms you knew, as matter of fact, that you had no patent on the woven wire itself?

A. Only as used in my patent swing bed bottoms.

269 X Q. Referring to your direct answer 27, you state that the only difference between the bed bottoms as described in the patent in suit and Complainants' Exhibit E — that in the one the web is hooked instead of stapled; state whether or not in Complainants' Exhibit E the swing-bar is composed of two iron or metal bars and instead of the webs being stapled it passes entirely between the two metal bars and the ends of the web are bent down under and beneath the lower surface of the under bar, forming a hook, and while the lower bar of the swing-bar in suit is made of wood.

A. They are made as above described.

270 X Q. Do you know of your own personal knowledge how many of Defendants' Exhibit D (of Turnbull & Webb) have been manufactured from year to year, in exact numbers, since May, 1881, and how many, in exact numbers, have been sold to the trade throughout the United States and foreign countries?

A. No, sir.

271 X Q. State if you know how many bed bottoms of each kind manufactured by the various bed-bottom manufacturers in the United States have been made and sold annually to the trade since the spring of 1881?

A. I don't know.

272 X Q. How many kinds of woven-wire beds do you manufacture without the use of the swing-bar, if any?

A. Two kinds.

273 X Q. What is the difference, if any, between woven wire manufactured for bed bottoms and swinging woven wire manufactured for bed bottoms, if there is any?

A. Not any.

90 Redirect examination by L. B. SUTRO, Esq.:

274 Re-D. Q. One-third partnership interest of your brother, does it or not entitle him to any legal or equitable interest in the patent itself in suit or only entitle him to one-third of the net profits made by your partnership by reason of his being a member of the firm known as the New York Woven-Wire Mattress Company in the sale of beds made by said partnership under the patent in suit?

A. He has only an interest in the profits derived therefrom, as above mentioned, and only had such interest at and before the beginning of this suit.

275 Re-D. Q. How many bed bottoms of any kind of material of swing-bar did you make, as near as you can about get it, under the patent in suit annually, specifying about each year?

A. I made about 500 the first year of 1881, all having the under bar of said swing-bar of wood. I made about 900 the following year with the under bar, some of metal and some of wood. The third year I made about 1,500, mostly of 2-bar, as above mentioned, but made some also with 3 iron bars, as shown in Defendants' Exhibit 3 Iron Bars, and have made those different kinds down to the present time in increased numbers.

276 Re-D. Q. How did you wish to be understood when you said in your direct examination that you made bars exactly like the

drawings in patent in suit for about a year and then made changes, as testified by you in your direct examination? Did you wish to be understood as not having continued at all the making of the swing-bar as you did during the first year?

A. No, sir; I meant that I made that particular kind for one year before changing to make some other kinds in connection therewith.

277 Re-D. Q. Is there any advantage of holes in metallic plate, as in your patent in suit, instead of eyes or hooks attached to wooden bar, as in Defendants' Exhibit B, and what effect would
91 helical springs have if placed in holes on a wooden bar in the same connection?

A. The holes in the metal bars prevent the springs from pulling out, while in wood they would pull out.

278 Re-D. Q. Do you or not limit the claims of your patent as covering only the identical swing-bar (the lower part made of wood and the wire attached thereto by stapling), or do you claim equivalent devices?

A. I claim all substantial equivalents.

279 Re-D. Q. Do you or not consider the lower part made of metal, with a wire edge bent around it, as in Complainants' Exhibit E, a substantial equivalent to the staple, wood, and bar of your patent within the scope of that patent?

A. Yes, sir.

280 Re-D. Q. Did or not defendants ever buy any bed bottoms of you exactly like Complainants' Exhibit Dunks and Ryan Figure Three, the wire, however, being stapled at both ends, and did you ever sell them any exactly as shown in your patent?

A. Yes, sir; I sold them some in 1882.

281 Re-D. Q. Also with reference to such like in Complainants' Exhibit E?

A. Yes, sir; in 1882, and I also sold them some like those shown in Defendants' Exhibit Three Iron Bars.

282 Re-D. Q. How is it about Complainants' Exhibit E itself? Is that one of the bed bottoms you sold them?

A. No, sir.

283 Re-D. Q. Which claim of your patent, if any, refers to the preference provided for in your specification of patent in suit as described at line 35, page 1 thereof, and what follows?

A. The third claim.

284 Re-D. Q. Do your specifications and claims considered together cover the use of a single bar alone unless clamped with another for a throat to allow the woven-wire ends to enter?

A. They do not.

285 Re-D. Q. Will or will not a wooden bar, though nar-
92 row, sustain a greater tension if supported by a metal plate than if not?

A. You can use a narrower and more flexible piece of wood when combined with a metal plate and combined as shown in my swing-bar.

286 Re-D. Q. In making a bed bottom intended for great elasticity and flexibility would or would not, at and before the date of

your application, a person skilled in the art make so heavy and comparatively inflexible a swing-bar as Defendants' Exhibit Dunks & Ryan Swing-Bar?

A. No, sir.

287 Re-D. Q. From your general knowledge gained in the trade do you know whether defendants have or have not been selling large quantities of bed bottoms such as are covered by your patent in suit?

Counsel for defendants objects to the question as incompetent at this stage of the case. That is a matter of accounting, provided complainant- shall obtain a decree and a reference; that it is irrelevant and immaterial at this stage of the proceeding, and also that it is not rebutting evidence.

A. I have saw large quantities of their bed bottoms in the trade.

JAS. B. RYAN.

Sworn to before me—

JOHN A. SHIELDS, *U. S. Com'r.*

Adjourned to Friday, March 9, 1888, at 9 a. m.

NEW YORK, *March* 9, 1888—9 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

93 Mr. FRANK A. HALL, a witness produced on the part of the complainants, being duly sworn, deposes as follows:

1 Q. Please state your name, age, residence, and occupation.

A. Frank A. Hall; age, 42 years. I reside in Mont Clair, New Jersey. I am a merchant manufacturing mattresses and spring beds.

2 Q. You are not a professional patent expert, are you, but are one of the complainants in this action?

A. I am one of the complainants, but no such expert.

3 Q. How long and about how extensively have you been engaged in the mattress and spring-bed business?

A. I went into business in 1869. I have sold all I could sell. I have sold last year over a half million dollars of goods; that includes mattresses, spring beds, and our general supplies.

4 Q. Please look at Defendants' Exhibits A, B, and C and state if you ever saw or heard of any bed bottoms like those shown and described therein in the market.

A. No, sir.

5 Q. About when did you first see a swinging woven-wire bed bottom and by whom manufactured?

A. The first one I ever saw was in Dunks' store; it was in 1882 or 1883, and it was made by the New York Woven Wire Mattress Company, according to its stencil marks.

6 Q. About when did you commence, if at all, the manufacture of swinging woven-wire bed bottoms and under whose patent?

A. I think it was in 1884 that I commenced to manufacture

woven-wire beds, and it was under the patent of Dunks and Ryan in this suit.

7 Q. About how many suspended bed bottoms suspended from end springs did you manufacture or sell before you commenced the manufacture of swinging woven-wire bed bottoms?

94 Counsel for defendants objects to the question as incompetent, irrelevant, immaterial, and inadmissible.

A. I suppose we sold between five and ten thousand spring beds suspended by the ends, of all kinds.

8 Q. About how many of such suspended spring bottoms as you made before you commenced the manufacture of swing woven-wire bed bottoms have you manufactured or sold since that time?

Defendants' counsel objects the same as to question 8.

A. A thousand would cover it all, easily.

9 Q. Has your manufacture and sale of swing woven-wire bed bottoms increased or decreased since you first commenced the manufacture of same, and about how much?

Counsel for defendants objects to the question upon the same grounds and for the reasons stated to question 8.

A. I have simply manufactured, all told, in the neighborhood of 3,500. The first year we manufactured between four and five hundred and since then it has increased every year.

10 Q. Did you ever see or hear of any swinging woven-wire bed bottoms before the one shown and described in the Dunks and Ryan patent in suit?

A. No.

11 Q. Why did you purchase an interest in the Dunks and Ryan patent No. 241,321?

A. Because I considered it a good investment and the best spring in the market of woven wire.

Cross-examined by J. B. JENKINS, Esq.:

12 X Q. You are a merchant, are you not, and not ex-
95 clusively engaged in the manufacture and sale of spring-bed bottoms?

A. I am not exclusively engaged in the manufacture of woven-wire bed bottoms.

13 X Q. And the sale of goods, amounting to half a million dollars annually, embraces all kinds of goods sold by you in your various businesses, does it not?

A. Yes, sir.

15 X Q. So that sum is not exclusively confined to the sale of bed bottoms?

A. No, sir; it is not.

Redirect by L. B. SUTRO, Esq.:

16 Re-D. Q. Are you or not engaged largely in the manufacture and sale of bed bottoms?

A. Yes.

FRANK A. HALL.

Sworn before me—

JOHN A. SHIELDS, *U. S. Com'r.*

Complainants' counsel offers in evidence letters patent No. 82081 of E. L. Buckingham. The same is received and marked in evidence as Complainants' Exhibit Buckingham Patent, March 9, 1888, J. A. S., U. S. com'r.

Also offers in evidence letters patent 229,501 to B. Van Dyke, and the same is received and marked in evidence as Complainants' Exhibit Van Dyke Patent, March 9, 1888, J. A. S., U. com'r.

Defendants' counsel objects to the last two exhibits on the ground that they are irrelevant and immaterial.

Certification waived.

96 Defendants' counsel offers in evidence letters patent to C. H. Hard, No. 318,728, patented May 26, 1885, which is received in evidence and marked Defendants' Exhibit C. H. Hard Patent of May 26, 1885, March 9, 1888, J. A. S., U. S. com'r.

Complainants' counsel offers to produce Richard W. Elliott, one of the complainants, to prove that his, said Elliott's, experience in a separate and distinct business from said Hall as to swinging woven-wire mattresses made under the patent in suit was similar to said Hall's experience as to the amount and increasing of sales of such bed bottoms.

Also that he had never seen any bed bottoms similar to Defendants' Exhibits A, B, and C in the trade nor heard of them, and that in all other respects he would give similar testimony to that given by said Hall.

Counsel for defendants admits that said witness will testify to the foregoing as therein stated, but subject to the like objections made to the evidence of said Hall. Complainants' counsel reserves the right to introduce in evidence a certified copy of the original application for Defendants' Exhibit C. H. Hard Patent of May 26, 1885, and of any papers filed in the file-wrapper thereof.

Complainants' counsel also reserves the right to introduce a certified copy of the whole or any part of the file-wrapper application for Complainants' Exhibit A, the patent in suit.

JOHN A. SHIELDS,
U. S. Commissioner, S. D. of N. Y.

97 COMPLAINANTS' EXHIBITS.

RYAN *et al.*
vs.
HARD *et al.*

COMPLAINANTS' EXHIBIT B. J. H. H., Notary.

Received for record June 23, 1884, and recorded in Liber D 31, page 302, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[U. S. Patent Office Seal.]

BENJ. BUTTERWORTH,
Commissioner.

This indenture witnesseth: That, in consideration of the sum of one dollar to me in hand paid, the receipt whereof is hereby acknowledged, from and by Richard W. Elliott and W. Russell Cougle, composing the firm of Elliott and Cougle, doing business at the city of New York, county and State of New York, I, the undersigned, now of Flint, Michigan, formerly of New York, do hereby license and empower the said copartnership of "Elliott and Cougle" aforesaid to manufacture in and throughout the territory known as the Middle and Eastern States of the U. S., but not elsewhere, the certain improvement in the beds or woven-wire mattress bed bottoms for which letters patent of the United States were granted to me and one James B. Ryan, under the number 241,321, on the 10th day of May, 1881, to the full extent of my interests therein, for their own use and behoof and for the use and behoof of their legal representatives, to the full end of the term for which said letters patent are or may be granted, as fully and entirely as the same would have been held and enjoyed by me had not this license been given and issued; and likewise I do grant the privilege exclusively to said firm, within the territory above specified, to sell at public or private sale all beds or bed bottoms constructed according to and under the aforesaid letters patent by or under their directions for the term of this license.

98 In witness whereof I have hereunto set my hand and seal, at Flint, in the State of Michigan, on this 7th day of June, A. D. 1884.

CHARLES H. DUNKS. [L. S.]

In presence of—
JOHN ALGOE.
S. R. ADAMS.

STATE OF MICHIGAN, *County of Genesee,* } *ss:*

On this 7th day of June, A. D. 1884, before me, a notary public in and for said county, personally appeared Charles H. Dunks,

known to me to be the person who executed the above instrument, and acknowledged the same to be his free act and deed for the purposes therein expressed.

JOHN ALGOE,
Notary Public.

RYAN *et al.*
vs.
HARD *et al.*

COMPLAINANTS' EXHIBIT C. J. H. H., Notary.

Received for record August 27th, 1887, and recorded in Liber Z 37, page 149, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[U. S. Patent Office Seal.]

BENTON J. HALL,
Commissioner of Patents.

Know all men by these presents that whereas the Commissioner of Patents of the United States did, by letters patent, under his hand and seal of the Patent Office, bearing date the 10th day of May, one thousand eight hundred and eighty-one, and numbers 241,321, granting unto Charles H. Dunks and James B. Ryan, of New
99 York city, and to their heirs, administrators, and assigns, for the term of 17 years, the full and exclusive right of making, constructing, and using and vending to others to be used a "swing woven-wire bed bottom;"

And whereas the said Charles H. Dunks on or about the 7th day of June, one thousand eight hundred and eighty-four, did sell, assign, transfer, and convey unto Richard W. Elliott and W. Russell Cougle, of the city of New York, composing the firm of Elliott & Cougle, all his right, title, and interest in and to a license to manufacture and exclusive right to sell "bottoms" constructed according to said letters patent aforementioned throughout the Middle and Eastern States to the full end of the term for which said letters patent are or may be granted;

And whereas the said Richard W. Elliott and W. Russell Cougle are desirous of assigning to Frank A. Hall, of the city of New York, the rights which they now enjoy under said patent, to be enjoyed by both parties to this instrument:

Now, therefore, know ye that we, Richard W. Elliott and W. Russell Cougle, composing the firm of Elliott & Cougle, of the city of New York, by virtue of the said assignment so made as aforesaid and in consideration of the sum of one dollar and other valuable considerations to us in hand paid by said Frank A. Hall, of the city of New York, have sold to Frank A. Hall, of the city of New York, our right, title, and interest in license to manufacture and exclusive right to sell "bed bottoms" constructed according to said letters patent throughout the Middle and Eastern States during the continuance of the term for which said letters patent are or may be

granted, subject, however, to an existing and reserved right which it is hereby mutually agreed the said Richard W. Elliott and W. Russell Cougle have to manufacture in the city of New York only, and to sell on equal terms and conditions throughout the licensed territory "bed bottoms" as aforesaid during the continuance of the term for which said letters patent are or may be granted.

100 Given under our hands and seals this 12th day of February, one thousand eight hundred and eighty-seven.

RICHARD W. ELLIOTT. [L. S.]
W. RUSSELL COUGLE. [L. S.]

Sealed and delivered in the presence of—
CHARLES E. O'CONNOR.

CITY AND COUNTY OF NEW YORK, *ss:*

On the 12th day of February, 1887, before me personally appeared Richard W. Elliott and W. Russell Cougle, to me known and known to me to be the individuals described in and who executed the foregoing instrument, and severally acknowledged that they executed the same.

CHARLES E. O'CONNOR,
Commissioner of Deeds, N. Y. Co.

STATE OF NEW YORK, *City and County of New York,* } *ss:*

I, James A. Flack, clerk of the city and county of New York and also clerk of the supreme court for the said city and county, the same being a court of record, do hereby certify that Charles E. O'Connor, whose name is subscribed to the certificate of the proof or acknowledgement of the annexed instrument and thereon written, was at the same time of taking such proof or acknowledgement a commissioner of deeds in and for the city and county of New York, dwelling in the said city, commissioned and sworn, and duly authorized to take the same, and, further, that I am well acquainted with the handwriting of such commissioner and verily believe that the signature to the said certificate of proof or acknowledgement is genuine.

101 In testimony whereof I have hereunto set my hand and affixed the seal of the said court and county the 10th day of September, 1887.

[L. S.] JAMES A. FLACK, *Clerk.*

RYAN *et al.*
vs.
HARD *et al.*

COMPLAINANTS' EXHIBIT D. J. H. H., Notary.

All bills subject to draft if not paid at maturity.

C. H. Hard.
J. J. Crawford.
H. D. Hard.

NEW YORK, *Feb. 25th*, 1887.

M. Cash Davies bought of Hard Brothers & Co. (removed to 120 West Broadway), manufacturers of cots, cribs, spring beds, and woven-wire mattresses; salesrooms, 365 & 367 Canal street, New York city; factory, Oneida, N. Y. Rob't F. Denniston, manager.

Terms, C. O. D.

---

1. Hard 11½ 4-4 4.50.

(Here is an illustration of a bed bottom made of woven wire swung, and being apparently composed of the devices shown in patent 241,321 in suit and of some of the devices in Hard's patents, both of which are in evidence in this suit. This illustration is also stamped "Pat. Nov. 13, '83." Hard's No. 11. 4-4 x 6.)

Shipped via Fredk. Schroder.
Paid.

HARD BROS. & CO.,
P'r R. F. DENNISTON.

102 United States Circuit Court, Northern District of New York.
In Equity.

JAMES B. RYAN *et al.*
vs.
CHARLES H. HARD *et al.*
No. 5622.

It is hereby stipulated that proofs and testimony herein which shall be taken on the part of complainants before John A. Shields, Esq., U. S. commissioner, southern district of New York, shall have and may be used herein with all the force and effect as though taken before a standing examiner of this court, and that the same may be read and used as though taken before such examiner.

JENKINS & DEVEREUX,
Defendants' Attorneys.

Dated N. Y. city, March 5, 1888.

COMPLAINANTS' EXHIBIT APPLICATION, MARCH 5, 1888. J. A. S., U. S. Commissioner.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the petition, specification, oath, and drawing in the matter of the application of James B. Ryan and Thomas P. Glody, filed February 9, 1882, serial number 52211, for improvement in bed bottoms.

103 In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 14th day of February, in the year of our Lord [L. S.] one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

BENJ. BUTTERWORTH,
Commissioner.

Petition.

To the Commissioner of Patents:

Your petitioners, James B. Ryan and Thomas P. Glody, citizens of the United States of America, residing respectively at Jersey City, county of Hudson, State of New Jersey, and New York city, county of New York and State of New York, pray that letters patent may be granted to them for the improvements in bed bottoms as set forth in the annexed specification.

And we hereby appoint H. H. Doubleday and H. H. Bliss, of Washington, D. C., our attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendment- therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

JAMES B. RYAN.
THOMAS P. GLODY.

Specification.

To all whom it may concern:

Be it known that we, James B. Ryan and Thomas P. Glody
104 citizens of the United States of America, residing respectively at Jersey City, in the county of Hudson and State of New Jersey, and the city of New York, county of New York and State of New York, have invented certain new and useful improvements in bed bottoms, and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of a bedstead containing our invention.

Figure 2 is a detached view of the corner-supporting block.

Figure 3 is a horizontal section of the block and one post on line *x y*, Fig. 1.

Figure 4 is a transverse vertical section of one of the clamping and supporting bars.

Similar letters of reference indicate like parts in all the figures.

Referring to the drawings, A A are the posts connected together in pairs by rails A at the head and foot of the bedstead.

Each of the posts A is provided upon one face with a wedge-shaped dove-tailed rib, *a*, the post being, by preference, square in cross-section for some distance above and below the rib.

B is a corner supporting block, provided upon one of its vertical faces with a wedge-shaped dove-tailed groove or recess or socket, *b*, adapted to fit closely and rest upon the correspondingly shaped rib, *a*.

C is a cross-bar, attached at its ends to the upper end of the corner-supporting blocks B, in any preferred manner, and provided with a series of holes, *c c*.

D is a side bar, attached at both ends to corner-supporting blocks, it being understood that two end bars, C C, and two side bars, D D, when thus united to each other, constitute a rectangular frame.

105 When preferred, each corner block may be provided with one member of a hinge, as indicated at small *a*, in order that the lower portion of the post A may be hinged thereto.

I will now describe a clamping and supporting bar which I have devised for the purpose of connecting an intermediate fabric to the spiral spring E, which in turn are attached to the end bars C.

F is a flat bar or plate provided with holes upon one edge to receive springs E E.

G is an intermediate bar and H is the lower bar.

I represents the fabric having one end doubled around the intermediate bar G, the three plates or bars F G H and the fabric I being firmly united and bound together by means of rivets J, placed at suitable distances apart.

While I have shown in the drawings two kinds of fabric—that is to say, a woven-wire fabric, K, and a fabric composed of narrow stripes or ribbons L L of metal, having interwoven therewith one, two, or more cross-strips M, which may, when preferred, have their ends turned over the outer edges of the outer strips L.

But I do not wish to be limited to the use of any particular fabric or intermediate structure in combination with my clamping and supporting bar, it being evident that I may use for this purpose canvas, leather, or any other suitable flexible material.

Nor do I wish to be limited to the use of my clamping and supporting bars in combination with spiral or other springs, nor with links connecting said bars with the end bars of the bedstead, because under some circumstances I may prefer to combine the intermediate bar G and the lower bar H with one of the end bars C, extending the

fabric to and wrapping it around the intermediate bar and afterward riveting bars G and H and the fabric to the end bars.

Or, when preferred, these parts may be secured to each other by clamping screws.

When desired, the end bars may be detachably connected with the corner supporting blocks, such construction being specially
106 described whenever the fabric is connected directly to these end bars.

It will, of course, be understood that I do not intend to make a bed bottom having two such dissimilar fabrics as those shown in the drawings, but have shown these two fabrics for the purpose of illustrating different methods of carrying out that part of my invention which relates to supporting in a bed bottom a fabric by clamping its end or ends around a bar or bars having other bars riveted or otherwise clamped thereto.

In order to make my bedstead more attractive in its appearance, I propose to add ornamented scroll-work or other beading or panelling to the outer faces of the corner supporting blocks and the adjacent posts A A, extending the bounding lines of the ornamented designs across the line which is formed by the contact of the block with the post.

Thus it will be seen that my construction of locking devices—that is to say, the rib *a* and socket *b*—is very desirable, because, among other things, it holds the parts in close contact along the entire edge of the block which is adjacent to the post.

Another important function performed by holding the entire face of the supporting block in contact with the post is firmly bracing the posts against deflection from a perpendicular line.

The side rails D D are made of gas-pipe or other tubular metal having wooden rods or cores fitting tightly therein and thereby materially strengthening them against sidewise deflection by preventing them from collapsing either wholly or partially.

These rails may have their ends provided with right and left screw-threads to engage with correspondingly screw-threaded sockets formed for their reception in the corner supporting block.

Or the screw-threads may be omitted and the parts held in position by the tension of the fabric and springs E E or by the tension of the fabric alone when the springs are dispensed with and the fabric is attached directly to the end rails of the rectangular frame.

107 It will be readily seen from an examination of the drawings that this rectangular frame with its supported fabric is also adapted to be used in connection with an ordinary wooden bedstead the same as is any of the ordinary portable or removable spring bed bottoms, and that it is especially adapted for such use by reason of the corner supporting block being provided with the socket portion *b* instead of having the rib portion *a* of the fastening device applied thereto.

Having thus described my invention, what I claim is—

1st. In a bed bottom, a flexible fabric having an end bent around a bar or plate, in combination with a second plate and means for

clamping the plates and the bent fabric to each other, substantially as set forth.

2nd. In a bed bottom, an intermediate bar, *a*, fabric bent around the bar, bars upon opposite sides of the fabric and the intermediate bars, and means for clamping the outer bars, the intermediate bar, and the fabric to each other, substantially as set forth.

3rd. In a bed bottom, a tubular rail, having closely fitting wooden core or support, substantially as set forth.

4th. In a bed bottom, the corner supporting block B, provided with the wedge-shaped dove-tailed recess *b*, substantially as set forth.

5th. In a bed bottom, the corner block B, provided with one part of a socket-fastening device, and also with one member of the hinge-joint *a*, substantially as set forth.

6th. In a bed bottom, the combination, with the hollow rails D, provided with wooden cores, of the corner piece B, provided with socket for the reception of the ends of the tubular rails, substantially as set forth.

7th. In a bed bottom, the combination, with the end rail and a flexible fabric, — the intermediate bar G, bar H, and means for clamping the bars and the fabric to each other, substantially as set forth.

8th. In a bed bottom, as a mattress support, the thin metal
108 strips L L in combination with the interlaced cross-strips M, having their ends bent around the side strips L L, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES B. RYAN.
THOMAS P. GLODY.

Witnesses:
HENRY GOTTGETREN.
LUTHER SHAFER.

Oath.

STATE OF NEW YORK, }
City and County of New York, } *ss:*

James B. Ryan and Thomas P. Glody, the above-named petitioners, being duly sworn (affirmed), depose and say that they verily believe themselves to be the original, first, and joint inventors of the improvement in bed bottoms described in the foregoing specification; that they do not know and do not believe that the same was ever before known or used; that the same has not been patented to them nor to others with their knowledge or consent in any foreign country, and that they are citizens of the United States of America and resident- respectively of Jersey City, in the county and State of New Jersey, and city of New York, county of New York and State of New York.

[L. S.]

JAMES B. RYAN.
THOMAS P. GLODY.

(No Model.)

110

C. H. DUNKS & J. B. RYAN.

Swing Woven Wire Bed Bottom.

No. 241,321. Patented May 10, 1881.

Fig. 1

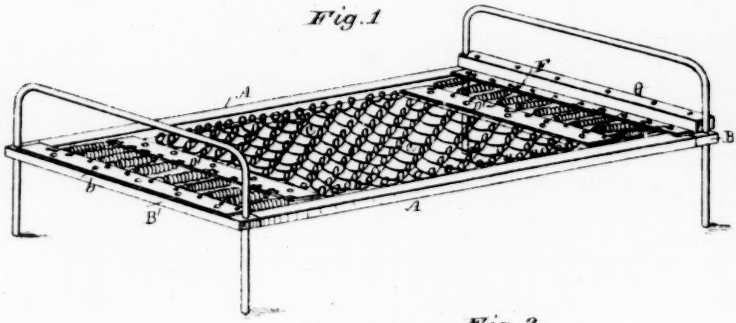


Fig. 2.

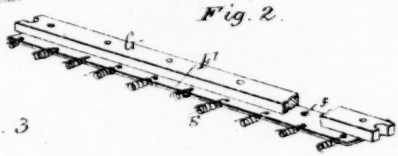
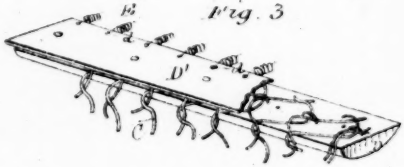
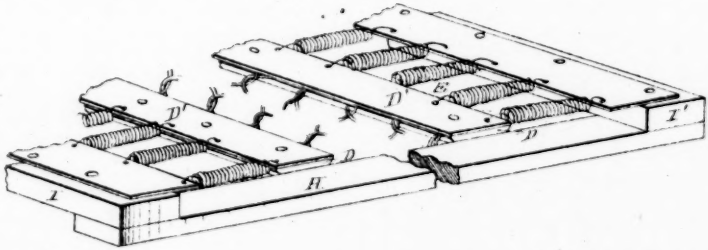


Fig. 3



No. 346. Ryan et al. & Hard et al. } p. 110.

Fig. 4.



Witnesses:
W. B. Mason.
J. S. Barker

Inventor:
Charles H. Dunks & James B. Ryan
by Doubleday & Bliss attys

No. 346
Ryan et al
&
Hurd et al

Ryan and Glody
Bed-Bottom

Filed Feb. 9, 1882

Fig 1

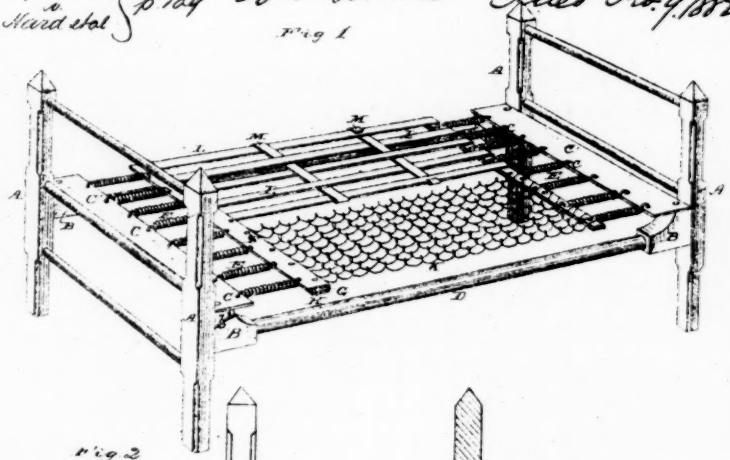


Fig 2

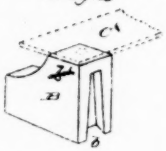


Fig 3

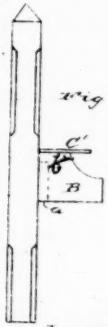


Fig 3

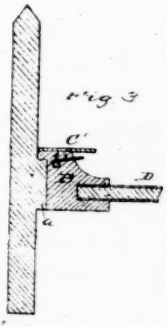


Fig 4

Attest

J. C. Turner
A. H. Law
J. D. Bracken

Inventors:
James B. Ryan &
Thomas P. Glody
by Dodbridge & Bliss

attys.

Sworn to and subscribed before me this third day of February, 1882.

HENRY GOTTGETREN,
Notary Public.

Ex'd: H. M. H.; E. A. M. W.

(Here follows diagram marked p. 109.)

111 UNITED STATES PATENT OFFICE.

CHARLES H. DUNKS and JAMES B. RYAN, of New York, N. Y.

Swing Woven-Wire Bed-Bottom.

Specification forming part of Letters Patent No. 241,321, dated May 10, 1881. Application filed March 26, 1881. (No model.)

To all whom it may concern:

Be it known that we, Charles H. Dunks and James B. Ryan, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful improvements in swing woven-wire bed-bottoms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

(Here follows diagram marked p. 110.)

Figure 1 is a perspective view of our improvement as applied to a bedstead. Fig. 2 is a detached view, showing the supporting-rail employed at the head of the bedstead shown in Fig. 1. Fig. 3 is a detached view, enlarged, of one of the swinging bars employed in our improvement, and Fig. 4 is a perspective view, showing the improvement applied to an independent frame adapted to be used in connection with a bedstead of any ordinary construction.

Referring to Fig. 1, A A are the side rails, B the head-rail, and B′ the foot-rail, of a bedstead, which parts may be of any usual or approved construction adapted to have our improvement applied thereto.

C represents a central section of the ordinary woven-wire fabric in common use in bed-bottoms. This fabric is attached, at either or both ends, to a swinging cross-bar, which, in turn, is suspended from one of the end rails of the bedstead. By preference we construct the swinging bar in two parts—a lower portion, D, formed of wood, to which one end of the woven fabric is secured by means of suitable pins, or otherwise, and an upper portion, D′, provided upon its outer edge with a series of holes, *d*, the upper and lower portions being secured to each other by rivets, bolts, or other analogous devices. Thus the upper part may be made to assist in securing the end of the woven fabric, to cover the end of the fabric, and thus protect the

mattress from undue wear, and also as a means by which to attach the springs E, links, or other devices employed to connect said swinging bar with the end rail of the bedstead.

E E represent a series of spiral springs, each connected at one end to the swinging bar, and at the other end to the end rail of the bedstead, preferably by means of an interposed supplemental bar or rail, F, which, in this instance, we have represented as being a metal bar provided with holes upon one edge for the attachment of the springs, and provided, also, upon the other edge with holes *f*, adapted to receive pins, by means of which said bar F can be attached, either to the end rail of the bedstead or to a separate rail, G, which, in turn, is secured to the end rail of the bedstead.

In Fig. 1 we have shown both methods of attaching the bar F to the bedstead, it being attached to the foot-rail B′ by means of a series of bolts, hooks, or pins, *b*; and in case pins are inserted in the rail B′ for this purpose, we prefer to incline them backward, in order to prevent the bar F from being accidentally detached when in use; or the pins may be provided with heads, the holes in the end rail of the bedstead being inclined inwardly at their lower ends, when the tension of the springs E will keep the form in position.

When the bar G is employed its ends may be notched to engage with the vertical posts of the bedstead, or with cleats or ribs secured to the inner faces of the posts or of the side rails, as the construction of the bedstead shall indicate as being most convenient; or the end rail of the bedstead may be provided with an inwardly-projecting rib having pins or hooks corresponding to those marked *b*; or hooks may be attached to and project from the inner face of the rail in proper position to receive the bar F.

Referring to Fig. 4, H H are the side rails, and I I′ the end rails, of a bed-bottom adapted to be applied to a bedstead of any ordinary or approved construction, and rest upon the cleats with which such bedsteads are usually provided for the purpose of supporting a detachable bed-bottom.

In this construction we prefer to dispense with the supple-
112 mental rail G and attach the bars F directly to the end rails,
I I′, in such manner as to be readily detached therefrom, in order to facilitate the rolling up of the spring portions for transportation.

By an examination of the drawings it will be seen that the cut ends of the woven-wire fabric enter and are secured within a throat formed between the upper and lower faces of the swinging bar D D′, and that the springs or links which connect said bar to the end rail are attached to the bar at the edge opposite to that at which the woven wire enters the throat, and in about the same horizontal plane, so that the tension of the parts tends to maintain the bar in a substantially horizontal plane, thus presenting a suitable surface adapted to support the mattress without undue wear upon any portion of its lower surface. So, also, constructing the bar in such manner that it is adapted to receive a hook formed of one of the convolutions of the springs E facilitates the employment of such springs as they are usually found in the market, this result being best obtained by the

employment of a strip of metal for one part of the bar D D′; but we do not wish to be limited to the use of metal for that purpose. One advantage which is due to the use of wood for this bar is the fact that its yielding and elastic nature permits attachment of the spring-wire of which the fabric C is formed, and the vibrations of the bar, when in use, without breaking their attached ends.

By the use of the springs and swinging bars the great strain upon the woven fabric which is required in beds of other construction may be dispensed with, because the springs may be made of such strength as will permit the fabric to be supported with comparatively little tension upon it when the bed is not sustaining any weight except that of the bedding, the springs preventing undue sagging of the fabric when the weight of a person is thrown upon it.

We do not wish to be limited to any particular description of springs for connecting the swinging bar or bars with the bedstead, or with the supporting frame shown in Fig. 2, as many other forms of springs might be employed without departing from the spirit of our invention.

Whenever in this patent we use the word "bed-bottom" or "bed" we wish to be understood as meaning either a removable construction, like that shown in Fig. 4, which is adapted to be made and sold as an article of manufacture, separate and apart from the bedstead with which it is to be used, or a construction adapted to be attached directly to the end rails of an ordinary bedstead, our invention being equally adapted for use upon either of such constructions.

What we claim is—

1. In a bed-bottom, the combination, with an end rail, of the links or springs, the section of woven-wire fabric, and an intermediate connecting transverse bar, provided upon one edge with a throat adapted to receive the ends of a wire, and upon the opposite side with means for attaching the links or springs, substantially as described.

2. In a bed-bottom, the combination, with the end rail, of the links or springs, the section of woven-wire fabric, and an intermediate connecting-bar consisting of a part to which the fabric is attached, and a part adapted to protect the mattress from contact with the ends of the wire, substantially as set forth.

3. In a bed-bottom, the connecting rail consisting of the part D, of wood, to which the fabric is attached, and the part D′, of metal, adapted to have the end of the springs E attached thereto, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES H. DUNKS.
JAMES B. RYAN.

Witnesses:
HENRY GOTTGETREN.
J. HOMER HILDRETH.

(Indorsed :) U. S. circuit court, north. dist. of N. Y. Ryan *et al. v.* Hard *et al.* Compl'ts' Exhibit A, J. H. H., notary.

115 UNITED STATES PATENT OFFICE.

BENTON VAN DYKE, of Chicago, Illinois.

Folding Cot.

Specification forming part of Letters Patent No. 229,501, dated June 29, 1880. Application filed August 5, 1879.

To all whom it may concern :

Be it known that I, Benton Van Dyke, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful improvements in folding cots, of which the following, in connection with the accompanying drawings, is a specification.

(Here follow diagrams marked pp. 113 & 114.)

In the drawings, figure 1, sheet 1, is a side elevation of a folding cot embodying my invention ; Fig. 2, sheet 1, a top or plan view thereof ; Fig. 3, sheet 1, a bottom view of the same ; Fig. 4, sheet 2, a top view of the same as seen when the canvas is removed ; Fig. 5, sheet 2, a vertical central section in the plane of the line *x x* of Fig. 4 ; Fig. 6, sheet 2, a side elevation of one end of the cot, showing the manner in which the end board may be used as a lever in tightening or stretching the canvas ; Fig. 7, sheet 2, a side elevation of the folded frame ; Fig. 8, sheet 2, a perspective of the center block ; and Fig. 9, sheet 2, a vertical cross-section of the clamping-bar for holding the canvas.

Like letters of reference indicate like parts.

My invention relates to that class of cots adapted to be folded compactly together when not in use.

My object is to so improve the construction of cots of this class that they will be very strong and durable, very compact when folded, and very firm when set up for use, and so that the canvas may be easily and tightly applied, and be capable of being kept at a proper tension with facility. I also aim to make the cot light compared with its strength, and cheap, and such as to be easily folded and set up.

For the purpose of accomplishing these objects my invention consists in the several novel features of construction, hereinafter set forth in my claims, and for a more particular specification of which reference may be had to the following description.

A A represent the legs of the cot, and consists of bars diverging from a central point, considerably above the floor, to the points usually occupied by the feet or parts resting on the floor, as is clearly indicated in Figs. 1, 3, 4, and 5.

B B′ are connecting bars or rods having a central joint, and also jointed to the parts A A near their outer ends, thus preventing the undue spreading apart or settling down of the parts A A when the

2 Sheets—Sheet 1.

B. VAN DYKE.

Folding Cot.

No. 229,501. Patented June 29, 1880.

No. 346. Ryan et al. vs. Maid et al. p. 113

Fig. 1

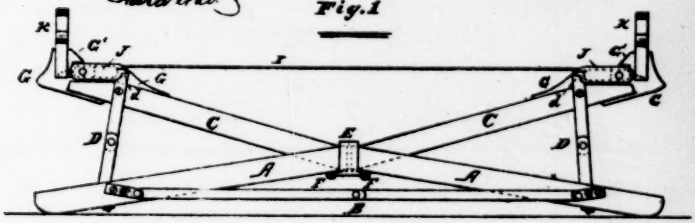


Fig. 2

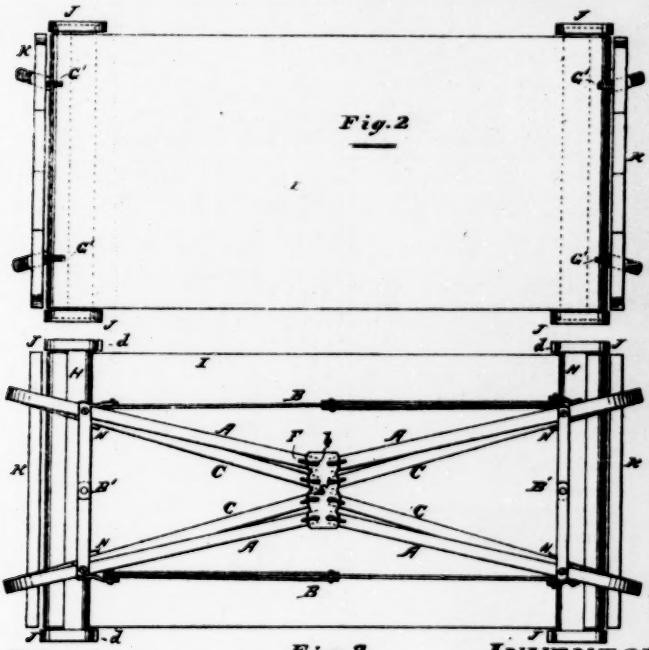


Fig. 3

Attest:

James H. Coyne

Jos. P. Whiting

INVENTOR:

Benton Van Dyke

By T. T. Hamm, his Attorney.

cot is set up, and also admitting of all of these parts being folded compactly together, substantially as hereinafter described, when the cot is not in use. A strong truss or support is thus formed.

I would regard straps as the equivalents of the parts B and B′, as leather, canvas, or other like material would perform substantially the same functions, or the function of folding or flexible ties.

C C are bars or rods, meeting at or near the inner ends of the parts A A, and diverging thence upward and laterally, as is also indicated in Figs. 1, 3, 4, and 5; and D D are centrally-jointed supports arranged vertically, and also jointed to the parts A A and C C, to support the latter parts in their raised position before the canvas is applied, and also to tie them to the parts A A. The parts C C are thus sufficiently supported, as will hereinafter be perceived, and they may also be folded down to the parts A A.

It may be deemed best to allow the parts D D to be bent or folded only in one direction, so that the parts C C shall not accidentally fall, and any well-known or suitable means may be employed for that purpose. A simple way of accomplishing that result is to make use of a fixed pin or stop, *a*, arranged to prevent the parts D D from being folded except in one direction, and allowing the joints to stand bent just enough in the opposite direction to prevent accidental folding.

E represents a centering or connecting device, which I use for the purpose of connecting the inner ends of the parts A and C particularly. The part E consists of a block adapted to receive the inner ends of the parts A A and C C when they are brought together centrally, as described, and in the lower side or face of this block are the holes *b b*. F F are staples passing through the holes *b b* and into the parts A A and C C, thus connecting these parts and the block E to each other loosely.

G G are lugs on the upper or outer ends of the parts C C, and G′ G′ are vertical rotary hooks or catches applied to the said lugs.

1,116 H H are two-part end bars, consisting of the parts *c* and *c′*, the inner faces of which are grooved deeply, as shown in Fig. 9, to receive a leaf or key, *c″*.

I is the canvas. The canvas is clamped at both ends between the parts *c*, *c′*, and *c″*, and arranged with relation thereto as is clearly shown in Fig. 9, thus being firmly grasped at the ends, so as to bear great strain without becoming loose, and admitting of its removal and replacement with facility, so that slack may be readily taken up at any time, and so that the canvas may be adapted or applied with ease to frames of various length. I would regard a fixed rib or feather as the equivalent of the part *c″* for the purpose set forth.

J J are end pieces or caps on the parts H H, and *d d* are lips or small projections on the said caps. The lips *d d*, however, are not essential, except for the purpose hereinafter set forth.

K K are the end boards. These boards may be made in any desirable form or design. L is a button pivoted to the under edge of each end board. One end of the button L may be notched, as shown at *e*, Fig. 6, to receive the lips *d d*, so that the end board, when arranged as there shown, may be used as a lever in forcing down

the bars H H in applying the canvas to the frame. The places for the end boards are between the hooks or catches G′ G′, and the rear vertical projections of the lugs G G, and the places for the end bars, H H, are between the said hooks or catches and the forward vertical projections of the lugs G G, respectively.

M M are notches to receive the feet *f f* of the hooks G′ G′, and N N are pins extending from the bars H H to receive the forward projections of the lugs G G; but neither the notches M M nor the pins N N are essential except for the purpose of holding apart the outer ends of the parts C C sufficiently when the canvas is applied, and I regard their equivalents for that purpose as included among the features of construction forming a part of my invention.

The notch *e* is not absolutely essential, as a lever may not in all cases be needed for the purpose set forth, and when needed any instrument capable of being used for the same purpose may be employed instead of the end board and its notched button. A slide may also be employed instead of a pivoted button, L, the function of which is simply to hold the end boards in their proper places, as indicated in Fig. 5.

In the example shown I have represented the upper or outer ends of the parts C C as beveled off, and the lugs thereon are correspondingly formed, thus causing the bars H H to lie flatly or horizontally; but it is neither essential that the parts referred to should be so beveled, nor that the said bars should lie flatly.

To set up the frame for use, I arrange the parts as represented in Figs. 1 and 4, and to apply the canvas I arrange the bars H H as already described, and turn the hooks G′ G′ over them, as shown in Figs. 1, 2, and 5. The setting up of the cot is completed by arranging the end boards in their proper places, as described, when end boards are desired.

To take down or fold the cot, I turn the hooks G′ G′ back or away from their engagement with the bars H H, as shown in Figs. 4 and 6, first removing the end boards. The end bars and canvas may now be easily removed and rolled up compactly.

To fold the frame, the longitudinal ties should be pushed upward at their centers, and the others inward, when all the parts will readily assume the positions shown in Fig. 7, thus coming together very compactly.

By setting one arm of the tie B a little higher than the other, as indicated in Fig. 7, the block E will be thrown over out of the way, as is also there shown.

It is obvious from the foregoing description, and from reference to the drawings, that the objects I aim to accomplish, as already set forth, may be reached by means of the construction now described.

It is also obvious that the frame may be made of iron tubing or metal, as well as of wood, and modifications in details of construction will suggest themselves to those skilled in the art, so that the general structural plan described may be followed, whatever material may be used.

Any suitable covering or bottom may be substituted in the place of the canvas I.

It will also be perceived that great compactness in folding is secured, for the reason that the legs A A and supports C C are all made in separate parts, and may be folded in the same direction, and have abutment in the central part of the frame or truss, of which they constitute the principal part.

It is obvious that the construction of the center block, E, may be somewhat modified without materially changing its functions; and I do not, therefore, here intend to restrict myself to the precise construction thereof herein shown and described; but,

Having thus described my invention, what I claim as new, and desire to secure by letters patent, is—

1. The combination, substantially as described, in a folding cot, of the legs A A and supports C C, all made in separate parts, the folding ties connecting the outer ends of the said parts, and a centering or connecting device, substantially as described, connecting the inner ends of the said legs and supports articulately, for the purposes set forth.

2. The combination, in a folding cot, of the legs A A, supports C C, folding ties B, B′, and D, and a center block from which the said legs and supports diverge, substantially as and for the purposes specified.

3. The combination, in a folding cot, of the legs A A, sup-
117 ports C C, folding ties B, B′, and D, center block, E, jointed to the inner ends of the said legs and supports, and lugs on the outer ends of the said supports, substantially as and for the purposes specified.

4. The combination of the legs A A, the supports C C, provided with the lugs G G and hooks G′ G′, center block, E, folding ties B, B′, and D, the two-part end bars, H H, and their couplers, and the canvas or cover I, substantially as and for the purposes specified.

5. The combination of the legs A A, supports C C, lugs G G, hooks G′ G′, center block, E, folding ties B, B′, and D, two-part end bars, H H, provided with the pins N N, and carrying the leaf or key c'', caps J J, end boards K K, fastening L, and the canvas, substantially as and for the purposes specified.

BENTON VAN DYKE.

Witnesses:
F. F. WARNER.
GEO. G. BELLOWS.

(Indorsed:) Complainants' Exhibit Van Dyke Patent, March 9, 1888, J. A. S., U. S. com'r.

118 (Indorsed:) Complainants' Exhibit Hartford Woven-Wire Mattress Patent, March 5, 1888, J. A. S., U. S. com'r.

UNITED STATES PATENT OFFICE.

J. M. FARNHAM, of Hartford, Connecticut, assignor to Woven-Wire Mattress Company, of same place.

Improved Bedstead-Frame.

Specification forming part of Letters Patent No. 97375, dated November 30, 1869.

To all whom it may concern:

Be it known that I, J. M. Farnham, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and improved bedstead-frame; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

(Here follows diagram marked p. 119.)

Figure 1 represents a side view, partly in section, of my improved bedstead-frame. Fig. 2 is a detail transverse section of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new frame for single and double bedsteads, which are provided with elastic or flexible sheets for the support of the bedding or with other suitable bed-bottom. The invention consists in the use of slotted or double-inclined end pieces, in which the ends of the fabric are clamped, and in the employment of longitudinal adjustable standards, to which the said end pieces are secured. By this arrangement the fabric is securely held and can be stretched or slackened at will.

A, in the drawing, represents one of the two side bars of the frame. These bars are supported on suitable legs or posts or may rest directly upon the floor. To the ends of each side bar are secured, by means of bolts *a a*, upward-projecting standards B B, made of metal or other suitable material. These bolts pass through short longitudinal slots in the standards, whereby the latter may be adjusted to stretch the cloth when desired. These standards are grooved or have ribs on their inner sides, by which the ends of the end bars C C are held. The end bars connect with the side bars, and their standards with each other. Each end bar is made of two pieces or bars, *b* and *c*, both of equal and full length. Between them are held the ends of the fabric D, constituting the bed-bottom, and clamped by means of screws or bolts *d d*. The end bars are held in inclined positions, as shown in Fig. 1, by the ribs or grooves on the standards, and are held in place by means of screws *e*, which are fitted through the standards or by other equivalent devices. By being in the inclined position the end bars are arranged to hold the fabric secure without coming in contact with its under side more than necessary. The bolts *a* fit through slots to make the standards

J. M. Farnham,

Bedstead Frame.

No. 97,375. Patented Nov. 30. 1869.

No 3446.
Ryan et al.
v.
Ward et al.
} p. 119

Fig. 1

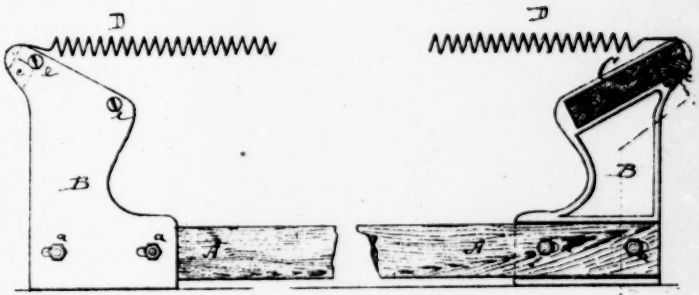
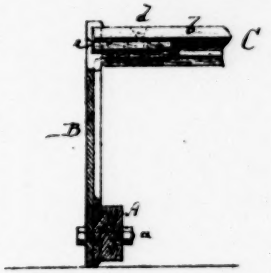


Fig. 2.



Witnesses:
A. Becker.
Alex. F. Roberts

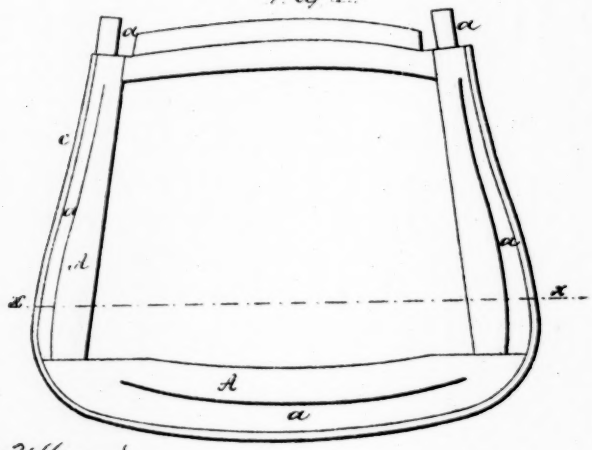
Inventor:
J. M. Farnham
per Munn & Co
Attorneys.

E. L. Buckingham,

Chair Bottom,

No. 82,081 Patented Sept. 15, 1868.

Fig. 1.



No. 3416.
Ryan et al.
v.
Hard et al.
} p. 121.

Fig. 2.

Witnesses,
W. C. Ashcraft
Wm. A. Morgan

Inventor,
E. L. Buckingham
per Munn & Co
attorneys

adjustable on the side bars, whereby the end bars can be set any suitable distance apart for the fabric to be stretched or slackened.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. The inclined double end bars C of a bedstead-frame, arranged substantially as and for the purpose herein shown and described.

2. The standards B arranged longitudinally, adjustable on the side bars of a bedstead-frame, to permit the inclined side bars to be set at suitable distance apart, as set forth.

J. M. FARNHAM.

Witnesses:
LEWIS E. STANTON.
GEORGE C. PERKINS.

120 UNITED STATES PATENT OFFICE.

E. L. BUCKINGHAM, of Jefferson, Wisconsin.

Improved Chair-Seat.

Specification forming part of Letters Patent No. 82081, dated September 15, 1868.

To all whom it may concern:

Be it known that I, E. L. Buckingham, of Jefferson, in the county of Jefferson and State of Wisconsin, have invented a new and useful improvement in the construction of chair-seats; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

(Here follows diagram marked p. 121.)

The nature of my invention relates to improvements in chair-seats made of woven splints, reeds, or other similar articles, the object of which is to cheapen the cost and render them more durable.

It consists in a method of fastening the reed or splint to the frame of the seat, by providing oblique slots through the rails from about the center of the inner edge downward and outward, terminating in the bottom face of the rails, near the outer edge, and in passing the strips of which the bottom is to be woven through the said slots, instead of through vertical holes, as heretofore.

Figure 1 represents a bottom-plan view of my improved chair-seat, and Fig. 2 represents a section on the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the rails of the chair-seat, and *a* the outer termination of the slots in the lower face of the said rails. *b* represents the material of which the bottom is woven, which is wound over the top, and down on the outside and through the slots, from the outer to the inner opening, thence under the rail, and over again at the top.

The slots may be made by first boring a hole in them in the

proper place to insert a saw, or by any other means. A strip, C, of wood or other elastic suitable material, may be bound around the edge or secured over the strips of which the bottom is composed, in any suitable manner, for protecting the said woven material.

I have found chair-bottoms secured to the rails in the above-described improved manner to last very much longer than when the reeds are woven through vertical holes bored through the rails, as they wear off very soon, or are cut by the sharp angle which they turn from the top downward through the said holes, the entire strain of the weight of the occupant of the chair coming directly on the said angle, whereas in my improved method the friction of the webbing around the outer edges greatly relieves the strain around the angles of the rail, and prevents any movement of the webbing on those angles, whereby great wear is caused to the webbing in the old method of fastening. The tendency to a wearing motion in my improved seat is greatly relieved also by the outer strip C.

I am enabled, by my improved method, to supply the market with chair-bottoms of a much better quality than those heretofore made, without increase of expense.

I claim as new and desire to secure by letters patent—

The strips *b*, composing the chair-bottom, secured in the rails A by being passed over and under said rails, the ends being inserted in oblique slots *a*, and there retained by the strip C, applied to the outer edge of the rails A, all substantially as herein shown and described.

E. L. BUCKINGHAM.

Witnesses:
WM. P. FORSYTH.
D. OSTRANDER.

(Indorsed:) Complainants' Exhibit Buckingham Patent, March 9, 1888, J. A. S., U. S. com'r.

(Here follows diagram marked p. 122.)

124 UNITED STATES PATENT OFFICE.

MARCUS A. HUNT, of Cincinnati, Ohio.

Spring Bed-Bottom.

Specification forming part of Letters Patent No. 252,772, dated January 24, 1882. Application filed July 2, 1881. (No model.)

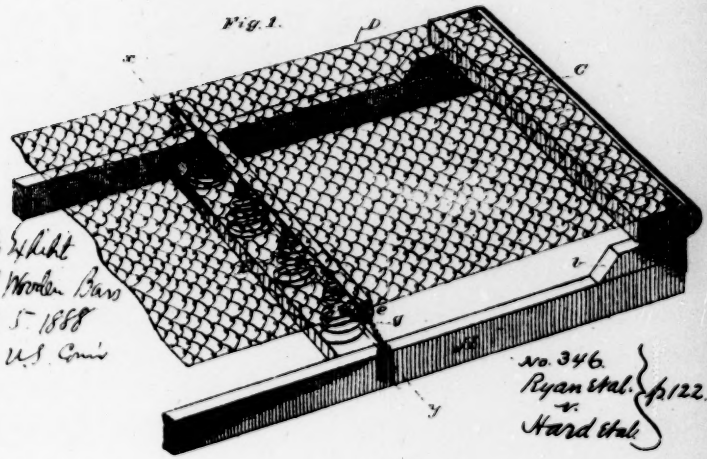
To all whom it may concern:

Be it known that I, Marcus A. Hunt, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful improvements in spring bed-bottoms, of which the following is a specification.

My invention relates to an improvement in spring-beds.

It consists, first, in providing a suspended spring-bed which is formed of a series of rows of double spiral or hour-glass springs.

Fig. 1.



Complts Exhibit
Cut of 2 Wooden Bars
March 5. 1888
J. A. S U.S. Comr

No. 346.
Ryan et al. } p. 122.
v.
Hard et al.

(No Model.)

123

M. A. HUNT.

SPRING BED BOTTOM.

No. 252,772. Patented Jan. 24, 1882.

No 346. Ryan et al v. Hardesty } p. 123

Fig. 1.

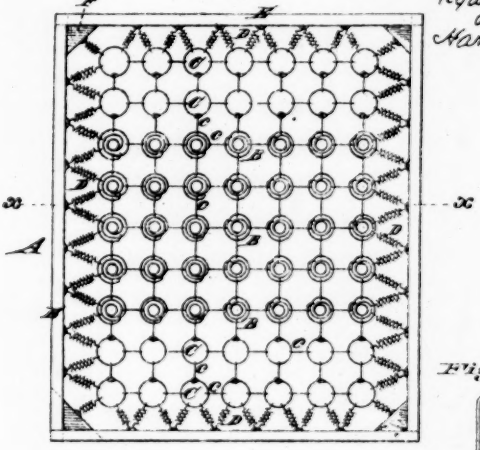


Fig. 4.

Fig. 2.

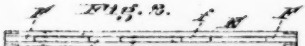


Fig. 3.

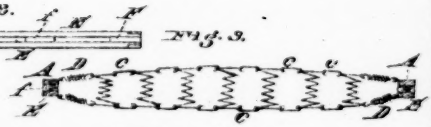


Fig. 8.

Fig. 7.

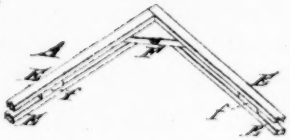


Fig. 6.

Attest

Jno. L. Jones

Eugene L. Tinkham

Inventor

Marcus A. Hunt

by Wood & Boyle,

his Attorneys

The top and bottom coil of the springs each have an end of the spring locking into the adjacent coil and forming rings of each end of the coils. These hour-glass springs are then secured to each other by transverse links connecting the outer rings together, forming a chain or hook connection of the springs. These series of woven or chain hour-glass springs are then suspended within an open quadrilateral frame by a series of spring-links, connecting each spring of the series at its top and bottom to the top and bottom sides of the suspending frame or arch.

Another feature of my invention consists of a double-coiled adjusting spring-link the coils of which are of woven form and turn one into the other over a supporting-spool, and forming a compound interworking adjustable tension-spring.

The object of my invention is to provide a spring-bed without supporting cross-slats which can be easily constructed and secured in position; also, in providing means for adjusting the spring-link connection to the frame of the bed, so that the stretch of the springs may be readily taken up; also, in providing an adjusting spring-link, so that the links connecting the springs to the bed may be readily adjusted to fit the varying width and distance of the parts which are to be connected by the spring-links; also, to allow the tension of the spring-bed to be readily adjusted to any desired degree of flexibility or tautness to suit the wishes of the user.

Other features of my invention will be more fully set forth in the description of the accompanying drawings.

In the accompanying drawings—

(Here follows diagram marked p. 123.)

Figure 1 is a plan view of my improvement. Fig. 2 is a side elevation of the sides or ends of the suspending-frame. Fig. 3 is a cross-section on line *x x*, Fig. 1. Fig. 4 is an elevation of the adjustable spring-link. Fig. 5 is a perspective view of a modified form of spring. Fig. 6 is a detail perspective of one of the connecting-rings. Fig. 7 is a perspective view of one corner of the suspending-frame.

Fig. 1 is a plan view of the preferred form of constructing my improved suspended spring-bed, which is shown to have a series or rows of spiral springs, B B, in the central portion of the bed. A A represent the frame between which the springs forming the bed are suspended. B B represent rows of spiral or hour-glass springs. C C represent rows of rings linked to the springs B B upon their inner sides by connecting links or hooks *c*. D D D D represent adjustable link-springs by which the series of springs and rings are connected to and suspended upon the frame-pieces which form the outer boundary of the bed. These springs are of the peculiar form as shown in Fig. 4.

In order to provide means for adjusting the tension of the springs and tautness of the bed, it is desirable to provide some means for adjusting the length of the spring-links, as well as to increase or adjust their tension. This is accomplished by making the spring-

link D in two sections, having a hook, *d*, at one end and a series of worms or spiral coil, *d'*, at the opposite end, and to intertwine in the form of worm-threads the spring-end of the links. In order to make the suspension more complete, a spool, D', is placed within the coils of the intertwined spring D and effectually prevents their sagging, supporting the coils of the spring-links and keeping them in proper shape. This adjusting spring-link is a particular feature of my invention and adds much to the durability and ease of adjustment of the spring-bed, which forms a special feature of the invention.

It is obvious that other connecting-links might be substituted for the spring-links D in constructing the suspended spring-bed forming the first feature of my invention, which would secure many advantages over other spring-beds in common use.

Figs. 2 and 7 represent an improved form of making the
125 side and end pieces of my suspending-frame. E E represent two parallel strips of wood, half-tenoned at their ends and nailed or fastened to a corner supporting-block, F. *f f* represent supporting blocks placed in the slot or opening between the frame-pieces E E, and serve to prevent the springing of the frame. This form of making the suspending-frame has several advantages. It is quickly and easily constructed and possesses greater strength to amount of material employed than any other form of quadrilateral open frames.

Instead of employing double hour-glass springs, spiral springs like that shown in Fig. 5, supported on slats, may be employed in combination with my improved frame and adjusting spring connecting-link, and still contain the substantial parts of the second and third features of my invention.

Instead of the rings C, the hour-glass springs might be continued to the outer edges; but two rows of rings at each end can be used at considerable saving of cost and still obtain a very superior bed-bottom.

A bed-bottom made as shown possesses very many advantages over other forms in use. It can be made of much less weight of wire springs, which are arranged so as to secure a great amount of flexibility and wear.

This bed, upon each side, has in substance a spring fabric formed by the rings, being superior and much cheaper than woven-wire mattresses.

I claim—

1. A suspended spring-bed consisting of a series of vertically-arranged hour-glass springs connected to each other at the top and bottom by hooks or links, in combination with a surrounding quadrilateral frame and links connecting both the upper and lower portions of the vertical springs with the upper and lower edges of the surrounding frame, substantially as and for the purposes described.

2. The combination, with a series of vertically-arranged springs, B, and a surrounding frame, A, of the adjustable link-springs D, consisting of two sections, each provided with a hooked end, *d*, and a spiral coil, *d'*, the said coils intertwining with each other and the

(No Model.)

C. H. HARD.

126

MATTRESS FRAME.

No. 288,431. Patented Nov. 13, 1883.

No. 346.
Ryan et al.
v.
Hard et al.
} p. 126.

Fig. 1.

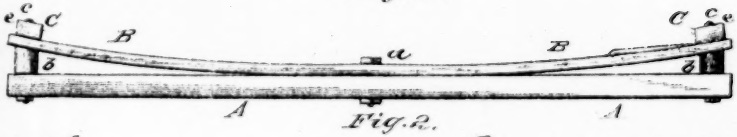


Fig. 2.

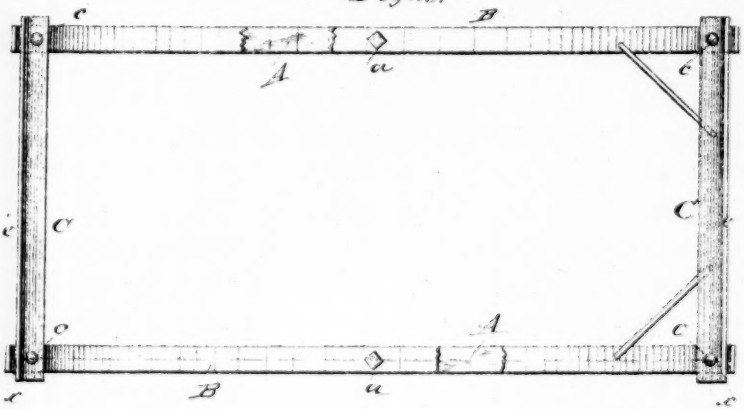
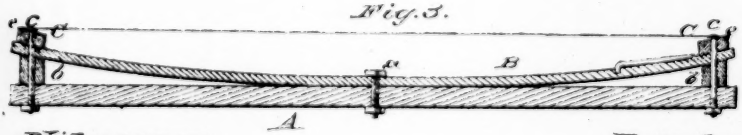


Fig. 3.



Witnesses:

Phil. C. Dirtrich

W. R. Keyworth

Inventor

Chas. H. Hard

by

M. Alexander

Attorney

hooks of the two sections being connected respectively with the vertical springs and the surrounding frame, substantially as described.

3. In combination with the vertically-arranged spiral springs and surrounding supporting-frame, the adjustable intertwining spiral coils *d'*, each provided at its outer end with a hook, *d*, which are connected respectively to the vertical springs, and the spool arranged entirely within the coils *d' d'*, substantially as and for the purposes described.

4. A quadrilateral suspending-frame of a spring bed-bottom, composed of slats E E, attached to corner supporting-blocks, F, and separated by blocks *f*, substantially as herein set forth.

5. A spring bed-bottom composed substantially of the frame A, a series of vertically-arranged spiral springs attached transversely to each other by two series of transverse hooks or links, *c*, and all connected to the said frame by the adjustable spring connecting-links D, as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MARCUS A. HUNT.

Witnesses:
EUGENE L. FIRNKOESS.
J. H. CHARLES SMITH.

(Indorsed:) Complainants' Exhibit Hunt Patent, March 6, 1888, J. A. S., U. S. com'r.

127 UNITED STATES PATENT OFFICE.

CHARLES H. HARD, of Oneida, New York.

Mattress-Frame.

Specification forming part of Letters Patent No. 288,431, dated November 13, 1883. Application filed May 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, C. H. Hard, of Oneida, in the county of Madison and State of New York, have invented certain new and useful improvements in mattress-frames; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompaning drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

(Here follows diagram marked p. 126.)

Figure 1 is a side elevation of my improved mattress-frame. Fig. 2 is a top view of the same; and Fig. 3 is a section taken longitudinally and vertically through the frame, as indicated by

the dotted line *x x* on Fig. 2, showing a bed-bottom stretched from one cross-bar to the other.

This invention relates to frames for portable mattresses; and it consists in a frame which is trussed and braced and made very light, at the same time it is very strong, as will be fully understood from the following description, when taken in connection with the annexed drawings.

A A designate the two longitudinal base-bars of my improved mattress-frame, which may be made of any desired thickness, width, and length, and B B designate longitudinal bars, which are rigidly secured by rivets or bolts *a a*, or in any other suitable manner, to the bars A A. The upper bars, B B, are sprung, so as to form trusses, and their ends are sustained by blocks *b b*, which hold them in the bent or trussed position.

It will be seen that I have compound side bars, each one of which is entire throughout the length of the frame, and that these bars possess considerable strength—in fact, greater strength than a solid bar would possess, all things being equal. These compound trussed side bars are connected at their ends by means of cross-bars C C, which in practice I prefer to secure to the ends of the said side bars by means of bolts *c*, which are passed from above down through the three connected ends of each angle of the frame, and through the spreading-blocks, between the base and truss bars, as shown in Fig. 1.

As the mattress-frame is subjected to great strain while handling and in transportation, I employ diagonal braces, which are secured to the head strip or bar, and also to the longitudinal sprung bars or trusses B B. These braces will prevent racking of the joints at the angles of the frame and keep the frame square. The bowing or springing of the top bars, B B, necessarily inclines the cross-bars C C toward the center of the frame, which inclination presents two angles, *e e*, over which the woven-wire or other fabric is stretched. It will thus be seen that the mattress proper is by reason of the inclination of the cross-strips stretched from the points *e e*, and that a free play is allowed, which would not be obtained if the cross-strips were horizontal.

Having thus fully described my invention, what I claim as new, and desire to secure by letters patent, is—

The combination, in a mattress-frame, of the longitudinal straight side bars, the continuous bowed bars secured on top of the side bars at the middle of their length, the end blocks, *b*, between the ends of the bowed and straight bars, the transverse bars C, and the bolt-fastenings, all constructed and adapted to operate substantially in the manner and for the purposes described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

CHAS. H. HARD.

Witnesses:

E. C. STARK.
T. H. JURDEN.

(No Model.)

C. H. HARD.

128

FOLDING WIRE MATTRESS.

No. 318,728. Patented May 26, 1885.

No. 346.
Ryan et al.
v.
Hard et al.
p. 128

Fig. 3.

Fig. 2.

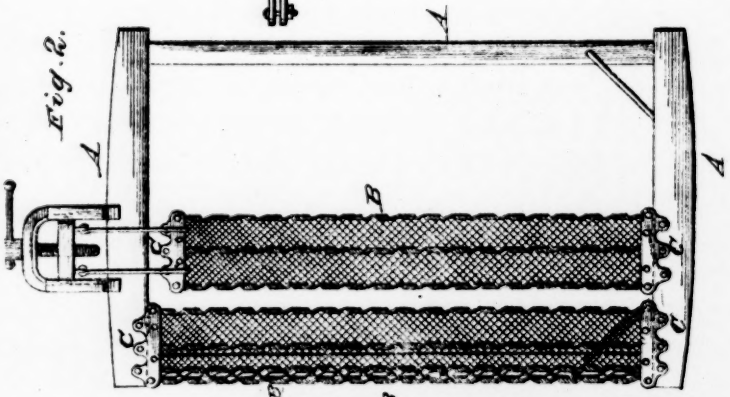
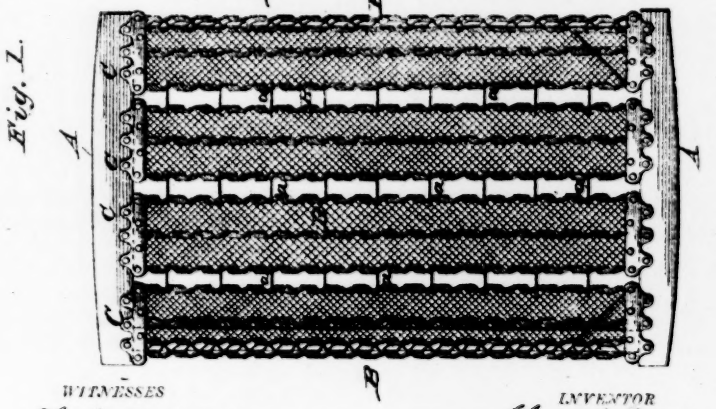


Fig. 1.



WITNESSES

Phil C. Dirkrick

W. R. Keyworth

INVENTOR

Chas H. Hard

by

W. W. Brownell

Attorney

(Indorsed:) Def'ts' Exhibit Hard Bowed Bar Patent, March 8, 1888, J. A. S., U. S. com'r.

129 UNITED STATES PATENT OFFICE.

CHARLES H. HARD, of Oneida, New York.

Folding Wire Mattress.

Specification forming part of Letters Patent No. 318,728, dated May 26, 1885. Application filed May 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, Charles H. Hard, of Oneida, in the county of Madison and State of New York, have invented certain new and useful improvements in bed bottoms of wire and other fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

(Here follows diagram marked p. 128.)

Figure 1 is a top view of my improved mattress applied to a frame. Fig. 2 is a similar view of the same, showing one of the wire strips down previous to applying the tension device for drawing or stretching it up to the frame to be fastened. Fig. 3 is a view of one end of one of the strips, showing my mode of fastening the netting to the end pieces.

This invention relates to wire mattresses; and it consists in such peculiarities of construction as will enable the mattress to be easily folded in a small compass for transportation or storage and set up, all of which will be fully understood when taken in connection with the annexed drawings.

A represents a wooden frame, which may be constructed of any suitable size.

B B B B represent sheets or strips of wire cloth or fabric, the edges of which I preferably re-enforce.

C C C C represent metal plates, which are suitably secured at each end of the wire sheets, the said plates being perforated at their outer edges, as shown in the drawings, so they may be tacked or secured to the frame.

a a represent detachable metallic links, which connect the sides of the sheets of wire fabric at suitable intervals. It is obvious that, instead of employing these links, I may adopt any other convenient and appropriate method of uniting the strips, though I prefer the way just described. By forming my mattress in sheets or strips they may be turned down one upon the other and then rolled in a compact form for transportation.

When it is desired to set the bed or mattress up for use I employ a tension device—for instance, one like or similar to that represented in the drawings—for tightening the strips or sheets of wire fabric.

I first tack, screw, or otherwise secure the metallic plates at one end of the strips to one end of the frame, then by means of a tension device applied to the metal plate at the opposite end of each sheet or strip I draw them to the proper degree of tension and likewise secure them. I preferably adopt tacks or pins to secure the metal plates to the head and foot boards of the frame, but do not confine myself to this means of doing it, as there are various other ways quite as effective.

The strips B, being considerably shorter than the distance between the end rails of the bed-frame, are necessarily made quite narrow, so that a great degree of tension may be given them without exerting great force. An equal degree of tension could not be given to wide strips or to the wire bottom made in one piece. Moreover, different degrees of tension may be given to the strips by securing them farther in or out on the upper surfaces of the end rails by means of screws or pins passing through their outer row of holes; or, if desired, each strip may be given a different degree of tension, as each is provided with end plates in no way connected with those of the other strips. By increasing the number of wires along the side edges of the strips—that is, by re-enforcing the said edges—the latter serve to stay the strips laterally, and will give the wires *a* stiffer connecting-points. The connecting-wires *a* unite the strips so that all of them will swing together laterally, and will form a single bed-bottom.

Having described my invention, I claim—

The combination, with the end rails of a bed-frame, A, of the narrow strips B, of woven wire, re-enforced along their side edges by additional wires, and provided with the end plates, C, adapted to be connected farther in or out onto the upper surface of the end rails, according to the amount of tension required, and the stiff detachable wires *a*, connecting at intervals the adjacent edges of the strips B, substantially as specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES H. HARD.

Witnesses:

F. O. McCLEARY.

A. E. DOWELL.

(Indorsed:) Def'ts' Exhibit C. H. Hard Patent of May 26, 1885, March 9, 1888, J. A. S., U. S. com'r.)

130 *Defendants' Testimony.*

U. S. Circuit Court, Northern District of New York.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. CONGLE, and RICHARD W. ELLIOTT
ag'nst
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD. } In Equity.

Testimony taken on the part of the defendants, under the 67 rule of practice for the courts of equity of the United States, as amended, by the — Spencer H. Stafford, notary public, in accordance with stipulation herein and in accordance with notice heretofore given by the solicitors of defendants on the solicitor for the complainants, said testimony being taken at the office of Jenkins & Devereux, in the village of Oneida, in the northern district of New York, on the 20th day of December, 1887.

Present: Leonard B. Sutro, Esq., counsel for complainants; James B. Jenkins and Thomas A. Devereux, counsel for defendants.

CHARLES H. HARD, produced and sworn as a witness on the part of the defendants, deposes and says in answer to questions *pronounced* by the defendants, having first been duly sworn:

1 Q. What is your name, age, residence, and occupation?

131 A. Charles H. Hard; age, 39 years; residence, Oneida, Madison Co., N. Y.; occupation, manufacturer of woven-wire mattresses, spring beds, cots, and cribs.

2 Q. State what experience and means of observation you have had to qualify you to testify in regard to mattress frames, spring woven-wire bed bottoms, and bed bottoms.

A. I have worked practically as a mechanic in the manufacture and construction of spring beds for the last fifteen years or more and in the construction and manufacture personally of wire mattresses and spring-bed bottoms of nearly every description known to the trade. I have worked personally as a mechanic in their construction and have superintended, had the personal supervision and direction of one of the largest establishments manufacturing this class of goods in the United States. I have traveled in the business over thirty-two States of the Union, parts of Canada, England, Ireland, and Scotland, investigating the art, examining the various devices, forms, and styles, and in selling my own manufactured goods. I have inspected and examined about every kind of wire mattress known to the trade and have manufactured nearly every kind and style of the same. I have invented mattress frames and wire mattresses and several patents have been granted me on my inventions by the United States, Great Britain, France, and Germany. The manufacture of such structures has necessitated my becoming familiar with the art, their operation, and the struct-

ure of the various kinds of such frames and bed bottoms;
132 also to examine and compare one with another, with a view to determine their similarity or dissimilarity.

3 Q. State whether you have examined, with a view to testifying in this action, U. S. letters patent issued to C. H. Dunks and J. B. Ryan, dated May 10, 1881, and numbered 241,321, and whether you understand the same.

A. I have examined it, and think I understand it.

4 Q. State, if you please, what the invention consists of as described and set forth in the cause of claim in such letters patent, having respect, *to* giving your opinion, to the description of said invention as described; also in the specifications and drawings of said letters patent.

Objected to by complainants' counsel on the ground that the witness (one of the defendants herein) has not shown himself qualified as an expert or to answer the question; secondly, on the ground that the court only can construe what the patent covers.

A. The invention consists, according to the description in the body of the specifications, of a bed bottom, the fabric of which is attached at either end or both ends to a swinging cross-bar, which in turn is suspended from one of the end rails, the swing-bars being constructed in two parts; the lower portion D, formed of wood, to which one end of the woven fabric is secured by means of suitable pins or double-pointed tacks or otherwise, and in upper portion D, provided on its outer edge with a series of holes, *d*, the upper
133 and lower portions being secured to each other by rivets, bolts, or other analogous devices. The claim consists in the combination with an end rail of the links or springs, the section of woven-wire fabric, and an intermediate connecting transverse bar, provided upon one edge with a throat adapted to receive the ends of the wire and upon the opposite side with means for attaching the links or springs, substantially as described. I understand that to be a claim for a swing-bar in a bed bottom constructed in two parts, the underlying bar of wood, on the upper surface of which the ends of the fabric are tacked or nailed with yoked nails or double-pointed tacks, with an upper bar of metal laid upon and secured to the lower bar by means of six rivets or bolts.

5 Q. You may state, in your opinion, what new thing there is in the construction of said swing-bar D D.

Complainants' counsel makes the same objections as to the last question, No. 4.

A. It is a device neither new or novel. The manner of attaching the fabric to wooden bars, as shown in swing-bar in patent No. 241,321, has been used by every manufacturer of woven-wire mattresses for the last twenty years or more; the device is well known in mechanics and carpentry.

Complainants' counsel objects that the testimony as to mechanics and carpentry was not responsive, and that witness has not even attempted to qualify as an expert generally as a mechanic or spe-

cially as a carpenter, and complainants' counsel therefore gives notice that he will move to strike out such testimony at the hearing.

134 6 Q. You may state whether the device shown and the construction of the swing-bar and the fastening of the ends of the fabric as therein shown and described is practical or otherwise, and whether you know or not that the inventors substantially discontinued the manufacture of the same as described in the patent and the cause which led to it, if you know.

Objected to by complainants' counsel on the same grounds as the objections to question No. 4 and also as immaterial.

A. I do know of the substantial disuse of the swing-bar as described in the specifications and drawing of the complainants-patent, Exhibit "A." The cause which induced it was that the necessary weight upon the web pulled out the ends of it from the swing' bar. The fastening of the fabric on the wooden bar with pins, yoked nails, or doubled-pointed tacks often split the wood, thereby causing the bar to break and the web pulling out. The structure and device is not safe and therefore not practical. To remedy this defect complainants have interlooped a thin bar or tongue between the two bars D and D′, the same being of iron, the ends of the wire fabric being woven entirely around said bar or tongue, the same being placed between the upper and lower bars D and D′. The upper or lower bars, with the thin bar or tongue between them, are securely fastened together with rivets or bolts, said bolts or rivets being in front of the center bar or tongue, thereby forming a stop, which prevents the fabric with the necessary strain upon it from pulling out.

135 7 Q. You may state whether the last device and structure of these bars as you have described it in your last answer form a part of the structure described in the letters patent in suit.

Complainants' counsel make the same objections as made to question 4.

A. It does not, but forms a different structure, and not shown in the figures and specifications forming a part of said letters patent in suit.

8 Q. In your understanding of complainants' said letters patent, do they comprehend or cover as the substance of the invention as therein described anything more than the wire swing-bar constructed as therein described?

Complainants' counsel makes the same objections as made to question No. 4 and also as leading.

A. I understand that from the description and from the claim of the patent that the invention comprises nothing but the swing-bar.

Adjourned to 1.30 p. m.

1.30.

Appearances as before.

9 Q. State whether the suspension of the swing-bar by means of the "helical springs" shown in figure 1 of said patent at either end is a part of said invention.

Complainants' counsel makes same objections as made to question No. 4 and as immaterial.

A. It is not. The "helical springs" have been in use for the last 15 or 20 years or more.

10 Q. I call your attention to Complainants' Exhibit "E,"
136 being the bed bottom mentioned in Complainants' Exhibit "D," and I ask you whether you have examined the same and whether you understand it and its construction.

A. I have examined it and I understand how it is constructed.

11 Q. Confining your answer more particularly to that part or portion of said bed bottom which shows the cross-bars near the head and foot of the same, please state how and of what material they are made and how the web is secured to them.

Complainants' counsel makes the same objection to this question as was made to question No. 4.

A. Either bar consists of two ordinary iron slats. The upper slat is about one inch wide, No. 18 *guage* iron; the lower bar is $\frac{3}{8}$ of an inch wide, No. 12 iron gauge; the ends of the web are placed between the two iron slats, the two slats being securely fastened together with proper rivets or bolts; the ends of the wire fabric is bent over the outer edge of the lower slat or bar, thereby forming a hook, which prevents the fabric from drawing or pulling out when the necessary strain and tension is applied to it; the outer edge of the upper slat or bar is provided with holes to receive the helical springs which are attached to the head and foot cross-bars. The difference from Complainants' Exhibit "A" *in* this, to wit, the swing-bars described in Complainants' Exhibit "A" is composed of two wooden bars, or the underlying bar is necessarily composed of wood, and are of the shape and construction as therein de-
137 scribed, *which* the cross-bars in Complainants' Exhibit "E" are entirely different in form, shape, size, and material, both upper and lower bars being composed of solid iron, while the defendant's upper bar is of irregular shape, with protruding points supplied with holes to receive the helical springs, while in Complainants' Exhibit "A" the woven fabric is secured to the underlying wooden bar by means of pins, yoked nails, or double-pointed tacks; the upper bar is placed over the ends of the fabric to cover up the nails and tacks and the ends of the fabric, while in Complainants' Exhibit E the web is secured in an en-irely different manner, and the upper bar is used to secure an entire-different purpose—that is to say, the web is placed between the two iron bars; no pins, yoked nails, or double-pointed tacks are used in any manner whatever, the fabric being bent over the edge of the lower bar, forming a hook, which finally secures it and prevents it from

pulling out; the web in Complainants' Exhibit A is nailed to the wooden bar and will draw or pull out when the necessary strain is placed upon it; the web in Complainants' Exhibit E, being fastened with a hook at the end and between the two bars, will not draw or pull out. The bed bottom as constructed in Complainant's Exhibit A is not practical or serviceable, but the bed bottom as constructed in Complainants' Exhibit E is both practical and serviceable.

12 Q. State whether the swing-bar, so called, in Complainants' Exhibit A is the end or termination of the web to which it is attached instead of being secured to the bed frame or head and foot of the bed frame.

138 Complainants' counsel makes the same objections to this question as were made to question No. 4.

A. Yes, sir.

13 Q. For how many years, if you know, were the helical springs as shown in Complainants' Exhibit A, figure 1, in public use prior to the date of Dunks & Ryan patent?

A. Fifteen years or more.

14 Q. Please state whether the said helical springs as shown in said bed bottom form any part of the Dunks & Ryan patent.

Complainants' counsel makes the same objections to this question as were made to question No. 4.

A. They do not.

15 Q. State whether, in your opinion, the two exhibits, A and E, described by you in your previous answers are, in respect to the swing or cross bars, similar or dissimilar.

Complainants' counsel makes the same objections to this question as were made to question No. 4.

A. In my opinion Complainants' Exhibit E does not contain the same features, so far as the swing-bar is concerned and considered, as the swing-bar described in Complainants' Exhibit A.

16 Q. In your opinion is the difference which you have described in the two structures last mentioned a material and important one and such as to effect the substance of the invention as described in the Dunks & Ryan patent?

139 Complainants' counsel makes the same objections to this question as were made to question No. 4.

A. In my opinion it is material and does effect the substance of the invention as described in the Dunks & Ryan patent.

17 Q. State whether you have investigated the state of the art with reference to swing-bars in bed bottoms and woven-wire mattresses and bed bottoms with a view to enabling you to testify the more intelligently in this suit.

A. I have.

18 Q. Please state what you have found in the way of United

States letters patent of date prior to complainants' patent bearing upon the state of the art.

Complainants' counsel makes the same objections to this question as were made to question No. 4.

A. The first which I have found is a patent for a bed bottom issued by the United States to Frederick Schumming, of Philadelphia, Pa., dated April 10, 1868, number 53888.

Defendants' counsel offers the same in evidence, it being here produced, and which is received in evidence and marked Defendants' Exhibit "A."

The bed bottom in this patent consists of the web or spiral springs interlacing each other, secured at either end by cross-bars and connecting springs. Through each end one, *a a*, a web, *b*, passes
140 the entire length. *c c* are rods placed parallel with the rod *b b*. The centers of rotation of the spiral springs composing the sacking and of the rods *b b* and *c c* lie in the same horizontal plane. *d d* are rods or bars resting transversely on the bed frame A. Around each of them at intervals a wire, *e*, is wound or turned, one end of which is inserted into the framing, and the other, *g*, is elevated at an angle and terminates in a hook, *h*, into which the rods *c c* are received. The rods *b c* and *b c* 1 are connected by the straps *l l*, and so forth, the ends of which are split to embrace the hooks *h h*, &c., and the ends of the springs *a* 1 and *a* 2 and hold them in place. The claim consists of the bed bottom, the straps *l l*, and the springs *e e*, arranged substantially as therein described. Figure 2, the three transverse bars *a a*, *b b*, and *c c*, bar or rods *c c*, is a swing-bar, and, in my opinion, this cross or swing bar performs the same office that the swing-bar in suit performs. In my opinion, the same principle is identical with the swing-bar on the bed in suit.

I also find a patent issued to F. Stanley Bradley, of New Haven, Ct., for spring bottoms for bedsteads, dated Feb. 11, 1868, No. 74293.

Counsel for defendants offers the said patent now here produced in evidence, and which is received and marked Defendants' Exhibit "B."

Which also bears directly on this case and shows a swing-bar at either end of the tuck, which spring-bars are suspended by spiral springs attached to the head and foot cross-bars. The claim consists in making a spring bottom with two cross-bars, to which I attach a common bed cord by means of loops or hooks and in
141 securing or attaching the cross-bars to the two end rails of the bedstead—that is, to head and foot rails—by means of spiral springs, so that when the cord is strained tight the pressure on the bottom will act principally on the spiral springs, so that the cords and bars may, as a whole, be pressed down, while the cords will afford or supply all of their usually effective yielding character; thus the two will increase the ease of the bed by their doubly yielding operation, while guided by the bars L M. I find in this claim the swing-bar at either end of the web, which spring-bars are at-

tached to the head and foot rails by means of spiral or helical springs. The principle in this and the bed bottom in suit are the same. The claim made by the Bradley patent is the construction of the spiral springs, with the two swing-bars L and M and the cord K. I also find another patent bearing directly on this case, issued to George W. Loomis, of Hartford, Ct., on improved spring bed bottoms, dated March 22, 1870, No. 107,029.

Defendants' counsel offers said patent in evidence. Same received and marked Defendants' Exhibit "C."

The bed bottom in this patent is a piece of canvas or stout cloth fastened at both ends to the wooden swing-bars *b b*. The letter C indicates the frame of the bed, to the head and foot pieces of which are fastened the spiral springs *d*, which on one side are fastened directly to the bars *b*, but on the other side are attached to the bar *e*. The claim in this patent is the combination and arrangement described of the canvass *a*, bars *b b*, springs *d*, movable
142 bar *e*, and cord *i* when constructed as described for the purpose set forth. This patent has at either end of the web a swing-bar attached to the head and foot bars by spiral springs.

I also find a patent issued by the United States to A. Turnbull and R. L. Webb, of New Britain, Ct., dated on reissue March 4, 1873, No. 5312.

Defendants' counsel produces said patent in evidence. Same received and marked Defendants' Exhibit "D."

This patent involves the same principle, constructed of sectional swing-bars suspended by helical springs from the head and foot bars. The bed bottom consists in a net-work formed of links jointed together and made elastic longitudinally by springs C S in figure 3. A represents a transverse bar at the head, and B the corresponding bar at the foot. To these bars are attached springs C, by preference spiral springs, the action of which is longitudinal with the bed bottom. From these springs at one end extends a succession of jointed rods, D. These rods are, by preference, connected by rings E, but may be united by other suitable connections transversely to the rods D. Other rods, F, are arranged as denoted in figure 1. Such rods, D D and F F, constitute when combined together jointed links. I find the claim is for a bed bottom composed of jointed rods or links, so called, D D and F F; this disconnected from the side rails of the f-ame, but made elastic longitudinally by springs C C. The bed bottom is composed of sectional swing-bars and rings attached at either end of the helical or spiral springs.

143 Certification of Defendant-' Exhibits A, B, C, and D is hereby waived by defendants' counsel.

19 Q. In your understanding of complainants' letters patent, drawings, and specifications annexed do they comprehend or cover as the substance of the invention as therein described anything more than the swing-bar?

Complainants' council makes the same objections to this question as made to question 4.

A. In my opinion they do not.

20 Q. Referring to the U. S. letters patent, Defendants' Exhibits A, B, C, and D, described by you in your answer to question number 18, state what difference, if any, exists between these structures or bed bottoms, so far as the swing-bar is concerned, and the structure shown in complainants' patent and wherein it consists, if any, confining yourself to the swing-bars.

Complainants' counsel makes the same objection- to this question as were made to question No. 4.

A. In my opinion there is no difference in the five patents in reference to the swing-bar in principle, but they are identical in that regard. In their use and operation the only difference is in the manner of securing or attaching the different webs or fabrics or cloth to it, which, in my opinion, nowise changes the principle involved, either in its office, use, or operation. There is no particular difference so far as the swing-bar is concerned.

144 21 Q. State whether you consider the difference which you have mentioned in securing the web material and important as matters of invention as contradistinguished from matters of mere mechanical construction.

Complainants' counsel makes the same objections to this last question as were made to question No. 4.

A. I do not, particularly, so far as the swing-bar is concerned. These methods are common and well known to mechanics and carpentry, and it is merely a matter of choice as to the precise shape of the swing-bar and the manner of attaching the web to it. They are essentially the same thing as a mechanical device. If the swing-bars shown in Defendants' Exhibits A, B, C, and D or either of them are substantially the swing-bars in the patent in suit they would operate in the same manner and produce the same result.

22 Q. Referring to your answer number six and the manner of fastening or securing the web to the swing-bar, composed of these bars as described by you, have you prepared a structure illustrating the same?

A. I have.

23 Q. State whether the structure now shown you is the one.

Complainants' counsel makes the same objections to this question as were made to question No. 4.

A. It is.

Counsel for defendant offers the same in evidence, which is received and marked Defendants' Exhibit 3 Bars.

145 24 Q. State whether the structure now shown you was made by you or under your supervision and whether it represents and illustrates the swing-bar testified to by you as the Complainants' Exhibit A and illustrated by figure 3 of your exhibit.

Objected to by complainants' counsel on the same grounds as the objections to question No. 4.

A. Yes; this was made under my supervision and it represents figure 3 in complainants' patent Exhibit "A."

Counsel for defendant offers said structure in evidence and the same is received, marked Defendants' Exhibit Dunks & Ryan Swing-Bar, Dec. 20, 1887.

— *A.* Look at the structure now shown and state whether the same was made by you or under your supervision and whether the same represents the swing-bar and the securing the web to the same as shown in Complainants' Exhibit E.

Complainants' counsel makes the same objections to this question as were made to question No. 4; also objected as not the best evidence; the Exhibit E of complainant speaks for itself.

A. It was, and does.

Defendants' counsel offers the same in evidence; received and marked Defendants' Exhibit 2 Iron Bars.

26 Q. Look at the structure shown you and state whether same was made by you or under your supervision, and state what the same illustrates.

146 A. It was, and illustrates the manner of attaching or fastening woven-wire fabrics to the end bars of woven-wire mattresses. The same device has been used for the last twenty years or more in the construction of woven-wire mattresses.

The same offered in evidence; received and marked Defendants' Exhibit 2 Wooden Bars.

Adjourned to December 21, 1887, at 9 o'clock in the forenoon.

1887, DEC. 21—9 o'clock a. m.

Examination resumed.
Same appearances as before.

Complainants' counsel, not waiving any of the objections taken in the direct examination of this witness, cross-examines him as follows:

27 X Q. You are one of the defendants in this action?

A. I am, and am senior member of the firm of Hard Bros. & Co. mentioned in the bill of complaint in this action.

28 X Q. How long have you been manufacturing woven-wire mattresses?

A. About five or six years.

29 X Q. I suppose you have been increasing the manufacture of woven-wire mattresses since you first began such manufacture?

A. We have.

30 X Q. Your establishment is principally engaged in manufacturing cots, cribs, &c., and not so much engaged in the manufacture of woven-wire mattresses?

A. We probably manufacture as many woven-wire mattresses as we do cots, cribs, and cradles.

147 31 X Q. You do not manufacture as many woven-wire bed bottoms as you do of other kinds of bed bottoms, do you?

A. I cannot say that we do without looking over the sales of the different articles we make.

32 X Q. You do not claim, do you, to be one of the largest woven-wire bed bottom manufacturers?

A. We claim to be one of the largest, if not the largest, in the Eastern States. I know of two or three wire-mattress manufacturers in the United States that manufacture more wire mattresses than we do.

33 X Q. When you were travelling abroad you did not do so merely to equip yourself as a patent expert and solely with that intention?

A. I did not.

34 X Q. When were you granted your first patent in the United States for any kind of woven-wire mattresses, if at all?

A. Nov. 13, 1883.

35 X Q. Were you ever granted a patent for a swing woven-wire mattress in which the upper bar of the swing-bar was shown in the drawings or otherwise specified in such patent as being formed, as shown in Defendants' "Exhibit 2 Iron Bars"?

A. I was never granted a patent on a so-called swing-bar, but a patent was granted me by the United States, Great Britain, France, and Belgium on a woven-wire mattress with the ends of the fabric attached to and secured to the two iron bars, as shown in Defendants' "Exhibit 2 Iron Bars," granted May 26, 1885.

148 36 X Q. In beginning your answer No. 4 you say "the invention consists according to the description, &c." Don't you know that a patent is not what is described in the specifications, but only what is claimed?

A. I suppose a patent has to be described before they make the claim.

37 X Q. In the same answer you state that "the swing-bar" (one element of the claim of invention in complainants' patent, 241,321) is "constructed in two parts, the lower portion, D, formed of wood." Does it not state in the patent on lines 36 to 38 of its specification as follows: "By preference we construct the swing-bar in two parts—lower portion formed of wood, etc."?

A. It does.

38 X Q. In the same answer, continuing the citation from the patent 241,321, lines 39 to 41, you say, "to which one end of the woven fabric is secured by suitable pins," and then, instead of reading the following words, "or otherwise," in your answer, you first insert the words "or double-pointed tacks." Are there any such words in patent 241,321 as "double-pointed tacks"?

A. There are no such words used in these lines quoted as "double-pointed tacks," but in figure 3 of the drawing, showing the ends of the fabric attached to the lower wooden bar, is double-pointed tacks or yoked nails, used to fasten the ends of the fabric to the lower

wooden bar. I infer that the inventor meant by the word "otherwise" double-pointed tacks or yoked nails.

Objected to by complainants' counsel as not responsive.

149 39 X Q. In stating in such answer No. 4 what the claim consists of, you do not mention the fact that all the claims in patent 241,321 begin with the words "in a bed bottom." They do so begin, do they not?

A. They do.

40 X Q. In answer to No. 4 you do not consider any but the first claim of patent 241,321, do you?

A. I do not.

41 X Q. There is nothing in that first claim which specially uses the word "wood," is there, nor in the second claim, is there?

A. There is not. The description of the invention and as shown in the figures do say and show that the lower bar is formed of wood; therefore it is not necessary for the inventor to say in his claim that the lower or either bar should be wood.

42 X Q. There are no specific words—"yoked nails"—in the specification of this patent, are there?

A. My answer 38 fully answers that question.

42 X Q. The third claim of patent 241,321 is the only claim which has the word "wood" printed in it. Am I right?

A. Yes.

44 X Q. United States patent law only requires the patentee to specify one way of making his invention, does it not?

A. I do not know. I am not posted as to the law on that point.

45 X Q. You also say, in speaking and testifying of what you understand our first claim to consist in, that the upper bar of metal is secured to the lower bar by six rivets or bolts. Do you
150 claim that if a person uses only five rivets for this purpose that fact in itself would allow an escape from infringement?

A. I do not.

46 X Q. You say in answer No. 5 that the swing-bar D D′ is a device neither new nor novel; that the manner of attaching the fabric as shown in swing-bar in patent No. 241,321 has been used by every manufacturer of woven-wire mattresses for the last twenty years or more. This twenty years' use refers only, does it not, to the manner of attaching the woven-wire fabric to the larger wooden bar, as shown in Defendants' "Exhibit 2 Wooden Bars"?

A. The woven-wire fabric attached to the lower wooden bar as shown in the Dunks & Ryan patent, in figure 3, shows the fabric attached to said bar in the same manner and device as shown in Defendants' "Exhibit 2 Wooden Bars." The size of the wooden bars in either case makes no apparent difference in the manner of attaching the fabric to it. The size of the bar is determined by the amount of strain that is necessarily placed upon the fabric when it is constructed.

Complainants' counsel objects to the answer as not responsive to the question.

47 X Q. What I wish to know is whether, when giving your answer No. 5, therein stating that the manner of attaching the fabric, as shown in swing-bar in patent No. 241,321, has been in use for twenty years or more, you had in mind the manner of attaching the fabric as it is attached to the larger bar of Defendants' "Exhibit 2 Wooden Bars."

151 A. I had that manner of fastening in view; also the manner of fastening the fabric on different sides of the bars, some of them with wooden strips, caps, or battens; also with iron plates, nailed or riveted on top of the ends of the fabric to help hold it in its place; also to cover up the ragged edge of the fabric.

48 X Q. That manner of fastening the fabric was always used, when it was used during this long period you mentioned, to attach the fabric to the end rail, was it not?

A. Not necessarily, but it could be used to fasten the fabric to any kind of bars.

Objected to by complainants' counsel as not responsive.

49 X Q. Is that the best answer you can make to 48 X Q., I asking therein only for your knowledge as to what was actually done?

A. As far at my knowledge goes, it is the best answer I can give.

50 X Q. You will not say that that manner of attaching the fabric was used on swing-bar mattresses for twenty years?

A. No, sir.

51 X Q. In answer 47 you say you had that manner of fastening the fabric in view, and also the manner of fastening the fabric on different sides of the bars (testifying, as you were, as to such use for twenty years or more), and you add, "some of them with wooden strips." The top- of those wooden strips were made flush with the top- of the end rails, were they not?

A. Some of them were.

152 52 X Q. How were the other wooden strips you referred to placed in relation to the end rail?

A. Some were narrower than the lower bar or rail. They are simply placed over the fabric to help secure it; also to cover up the ragged edge of the end of the fabric, the width or size of such strips being determined by the amount of the fabric nailed or tacked on the bar.

53 X Q. Is not this manner of attaching known generally in the trade as having first been used by the Hartford Woven-Wire Mattress Company, and did not they have a patent therefor?

A. I think they were the first parties that made woven-wire mattresses and fastened the fabric to the bar as shown in Defendants' "Exhibit 2 Wooden Bars." I do not know whether a patent was granted to them or not.

54 X Q. You do not know, then, what patent No. 7704, to J. M. Farnham on Nov. 30, 1869, covers?

A. I do not.

55 X Q. This long use was generally by having the two separate parts of the double wooden bar in two different perpendicular planes and in about the same horizontal plane when in use?

A. I do not know whether all wire mattresses manufactured within the last twenty years or more were constructed with end bars, horizontal or perpendicular. I simply say the fabrics have been attached to the bars as shown in Defendants' "Exhibit 2 Wooden Bars;" also as shown in Defendants' "Exhibit Dunks & Ryan Swing-Bar."

56 X Q. Whenever the fabric is attached to the side of the
153 end rail and the body of the fabric is that substantially at right angles to the end of the fabric there is considerable strain on the fabric at the point where it comes in contact with the edge of the end rail, is there not?

A. It does.

58 X Q. That was somewhat of a defect in the Hartford woven-wire mattress, was it not?

Counsel for defendants object to the question as irrelevant and not legitimate cross-examination.

A. I don't know whether it was or not.

58 X Q. I suppose that the manner of attaching the fabric to the large bar, "Defendants' Exhibit 2 Wooden Bars," had really been in use for twenty years or more. Don't you think the easy pulling out of the fabric, which you testify is a defect in patent 241,321, was submitted to for a long while by the woven-wire manufacturers, and yet the public continued to buy woven-wire mattresses?

Counsel for defendants objects to the question as speculative, improper, and incompetent.

A. The manner of attaching woven-wire fabrics to wooden bars in wire mattresses, as shown in Defendants' "Exhibit 2 Wooden Bars," with the fabric bent over the outer and upper edge of the larger bar and subjected to sufficient strain to draw the wire web in its proper shape is held more firmely and securely by its being drawn rigidly over the edge of the bar. The immense strain of the fabric when it is stretched tight sinks its convolutions in the sharp edge of the bar, and with a sufficient number of double-
154 pointed tacks driven over the edges of the fabric into the wood and the overlying cap, strap, or batten nailed or riveted firmly over the ragged edge of the fabric has been found sufficient to sustain almost any amount of weight. The only cases where a mattress manufactured or constructed in the manner I have described has been known to pull out or give way has been caused by an insufficient number of tacks or nails being used to fasten the fabric on the bar. The fabric, being drawn over the edge of the bar, forms a hook, and a less number of double-pointed tacks can be used in nailing the fabric into the wood than where the fabric is nailed or fastened on the upper side or top of the bar, where the fabric is drawn straight from the nails or tacks. In this manner of fastening there has got to be more nails or tacks used than where the fabric is fastened and bent around or over the edge of the bar.

59 X Q. If you pull a piece of wire doubled over the edge of a lower iron bar, such as is used in Defendants' "Exhibit 2 Iron

Bars," the likelihood is, of course, is it not, that the wire will not stand the strain so long as the iron bar?

A. The wire bent around a bar as shown in Defendants' "Exhibit 2 Iron Bars," forming a hook, reinforced by the upper bar being riveted rigidly to the lower bar with the fabric mashed and squeezed firmly between, cannot be drawn or pulled out by any strain that a wire mattress is subjected to in common use.

60 X Q. As a rule, when a double end rail was used, ten years ago or more, the ends of the fabric which were covered with
155 wooden strips, caps, or battens; also with iron plates nailed or riveted on top of the ends of the fabric to help hold it in its place; also to cover up the ragged edge of the fabric which you refer to in your answer 47—such ends then used were generally on a lower plane when the mattress was in use than the upper edge of the end rail which was nearest the body of the fabric?

A. I do not know whether it was made that way or not ten years ago.

61 X Q. Do you know whether ten years ago the batten or cap, being the smaller piece of wood in Defendants' "Exhibit 2 Wooden Bars," had on its lower side such a curve as is shown on said batten?

A. I do not know whether that hollow was made in the batten or cap ten years ago or not; some manufacturers use battens or caps without the hollow and some do not. My observations ten years ago were made on seeing woven-wire mattresses in their complete state. In such state an iron cap, commonly called corner iron, was nailed on the ends of the bars, entirely covering up the shape of the bar and batten or cap.

62 X Q. In Complainants' "Exhibit A," figure 3, where the upper bar D is cut off, is the shape not at that end apparently somewhat curved?

A. No, sir; that is, in my opinion, a piece of flat iron without any curves or crooks in it.

63 X Q. Those pins stapled in lower bar D of figure 3 of patent 241,321 could be possibly nailed down, so that their heads might be flush with the general upper side of the lower bar D therein shown, could they not?

156 A. No; not without a rabbet being planed out of the said wooden bar. Then the fabric and nails would be below the remaining surface of said bar. In that case the upper-lying plate of iron would rest on the upper part of the bar, but in figure 3 of the patent in suit the underlying wooden bar has a smooth surface on its upper face, thereby making it impossible for the plate to lay on the wooden bar's upper face.

64 X Q. Could not some portion of the upper bar D 1 squeeze between itself and the lower bar D a little part of the edge of the wire fabric if the upper and lower bar therein shown were as thoroughly riveted together as in Defendants' "Exhibit 2 Iron Bars"?

A. The riveting together of the two iron bars as shown in Defendants' "Exhibit 2 Iron Bars" forms a strong and solid vice of iron rigidly holding the fabric in its place, while in the two bars shown

in figure 3, the lower bar being wood, the upper iron cannot be riveted together so strong as the two iron bars of Defendants' "Exhibit 2 Iron Bars."

Adjourned to Dec. 22, 1887, at 9 o'clock a. m.

1887, DEC. 22.

Examination resumed.

Appearances as before.

65 X Q. The ends of the fabric in Complainants' "Exhibit A" are extended out in the same plane as the body of the woven wire, are they not?

A. Yes.

66 X Q. When and where did you first see or know of your own private personal knowledge of any complete swing woven-wire mattress having the whole of the woven wire, including its ends, held in the same plane?

157 A. I cannot state positively, but think it was some time in the year 1880 or 1881.

67 X Q. Where did you first see or know of your own positive personal knowledge of a complete woven-wire mattress wherein the whole woven wire was on one plane, the ends of the fabric being extended out and continued on the same plane as the body of the woven wire in such mattress?

A. I cannot give the exact date of when and where I have seen such woven-wire mattresses, but in my various travels, selling my own goods to the trade, for the last twelve years I have seen woven-wire mattresses constructed with the fabric extended out on the same plane and parallel with the body of the fabric, with a cap, strip, or batten fastened thereon to cover up the ragged edges of said fabric.

68 X Q. What date will you swear positively to that you have first seen such woven-wire mattresses as you mention in your last answer in public use or on sale in the United States?

A. I will not swear positively as to any date.

69 X Q. When and where is the first time, so far as you remember now positively and can swear to positively to seeing such woven-wire mattresses within the United States in public use or on sale?

A. I cannot swear positively to the days or dates when I have seen such mattresses, but think it was since 1876 and prior to 1880, and I swear positively it was before 1880.

70 X Q. Where before 1880, positively?

158 A. I probably visited and sold my goods to a thousand or more different customers in the United States during the period between 1876 and 1880 and saw in these different places such mattresses as referred to, but as to giving the exact times and exact places I cannot.

71 X Q. Such dates as you have given in answer 69 you just gave from memory, did you not, when you gave your answer 69?

A. Yes.

72 X Q. Did such woven-wire mattresses prior to 1880 and since

1876 have the ends of the woven wire clamped between an upper and lower bar, and will you swear positively that they did?

A. Some of them had the fabric fastened on in one way and some another. Some of them had the fabric fastened between the two bars, the two bars being nailed or riveted together, as shown in Defendants' "Exhibit 2 Wooden Bars."

73 X Q. And those that you mentioned in answer 72 as having had the fabric fastened between the two bars, the two bars being nailed or riveted together, as shown in Defendants' "Exhibit 2 Wooden Bars," you wish to be understood were in public use or on sale within the United States since 1876 and prior to 1880, having the whole of the ends of the woven wire extended out in the same plane as the body of the woven wire when such mattresses were complete?

A. Yes.

Complainants' counsel produces a model of a woven-wire mattress and offers the same in evidence simply for reference and has it marked "Exhibit" "Model of Complainants' Exhibit E," and the same is received in evidence.

159 74 X Q. Complainants' Exhibit E contains a swing-bar constructed substantially in the manner as shown in "E," model of Complainants' Exhibit E, and such swing-bar in Complainants' Exhibit E is connected with the woven-wire fabric substantially as shown in such model. Am I right?

A. Yes.

75 X Q. And such model shows substantially the way the swing-bar in Complainants' Exhibit E is connected to the end rail. Am I right?

A. Yes.

76 X Q. In your answer No. 6 you say you "know of the substantial divice of the swing-bar as described in the specifications and drawing of the complainants' patent, Exhibit A," and then give reasons, which you say induced them (the inventors) to discontinue such use. Before what date will you swear positively that you heard of such alleged discontinuance and from whom? And if you know it from your personal knowledge and not from hearsay state before what time you so knew it of your own personal knowledge.

A. Prior to my firm engaging in the manufacture of woven-wire mattresses we bought various kinds of woven-wire mattresses as jobbers in New York city from Charles H. Dunks; also the New York Woven-Wire Mattress Company, and among these so purchased from time to time were swing woven-wire mattresses. They were constructed with three iron bars, as shown in Defendants' "Exhibit Three Iron Bars."

77 X Q. Charles H. Dunks is not made a complainant in this suit, is he?

160 A. No.

78 X Q. In your answer 76 you have given your means of knowledge of the alleged discontinuance of use, have you?

A. Yes.

79 X Q. When you go into a place to purchase woven wire for mattresses do you ask merely for web, or what is your custom when you write an order for woven wire?

A. We manufacture our own webs from the coils of wire.

80 X Q. Is a patent (according to patent law) limited narrowly to just the mechanical devices shown, and does it not cover equivalents?

A. I don't think it does cover equivalents.

81 X Q. You say helical springs, such as shown in "Exhibit Model of Complainants' Exhibit E," were in use for twenty years or more. Were not they more of a conical shape twenty years ago?

A. My answer to that question will be found in Defendants' Exhibit C; also Defendants' Exhibit D.

82 X Q. Are there not valuable combination patents composed of elements, each element of which may have been old when the combination was invented?

A. I think there are.

83 X Q. The upper swing-bar in Complainants' Exhibit E is made straight, is it not, like in Exhibit Model of Complainant's Exhibit E, and not irregular and not with protruding points, as shown in Defendants' Exhibit 2 Iron Bars?

A. Yes.

161 84 X Q. Are the words "swing bar" printed anywhere in patents 53888, 74293, 101,029 or reissue 5312, being Defendants' Exhibits A, B, C, and D? If so, point it out.

A. The specific word "swing" is not used in either of the patents named in question; in patent 101,029 the word wooden bars is used; these bars are called in the claim "movable bar." This movable bar being attached at one side or edge to the canvas or cloth and at the other to spiral springs undoubtedly made it a swinging bar; the inventor has used the word movable in place of swinging; also in patent 74293 the inventor has simply used the word "bar," and in describing his patent says so; that the cords and bars may, as a whole, be pressed down. This bar attached at one edge to spiral springs, at the other to cords, of course is suspended between the cords and springs — is a movable or swinging bar. In patent 53888 the words rods is used to designate these so-called swing-bars.

85 X Q. When, if ever, did you first see a swing-bar made of two parts clamped together?

A. In my own factory about five years ago.

86 X Q. The discontinuance of the use of the patent in suit by the New York Woven-Wire Mattress Company, which you allege, was based, of course, on your construction of what that patent covers?

A. Yes.

87 X Q. You know that James R. Ryan, one of the complainants, is the head and front of that company?

A. I do.

CHARLES H. HARD.

Subscribed and sworn to before me this 22d day of December, 1887.

S. H. STAFFORD,
Notary Public.

Adjourned to 1 o'clock p. m.

162 1887—DEC. 22, 1887.

Same appearances as before.

HENRY D. HARD, a witness produced on the part of the defendants and being duly sworn, deposed and said:

1 Q. What is your name, age, residence, and occupation?

A. My name is Henry D. Hard; age, 42 years; residence, Oneida, Madison county, New York; occupation, manufacturer of woven-wire mattresses, bed bottoms, cots, etc.

2 Q. State whether or not you are a practical mechanic.

A. I am; profess to be.

3 Q. How long have you been engaged in the manufacture of spring beds, mattress frames, bed bottoms, cots, etc.? And state generally what experience you have had in that regard and whether you have been practically engaged in such manufacturing.

A. I have been engaged in the manufacture of woven-wire mattresses, spring bed bottoms, cots, etc., for about twelve years. My experience consists in having had personal oversight of the construction or manufacture of these articles. I have also been directly connected in the manufacture of the same.

4 Q. State whether you are one of the defendants in this action and at present engaged in the Hard Brothers & Company manufactory.

A. I am.

5 Q. Are you familiar with the construction of the bed bottoms such as illustrated in the Complainants' "Exhibit A"?

A. I am.

163 6 —. Describe to the court how the said bed bottom is constructed.

A. It is an ordinary mattress frame or bedstead with a wire fabric attached to a swing-bar at either end of said frame. The ends of the fabric are fastened with double-pointed tacks or staples to the lower or wooden portion of the bar, with an iron plate secured on the upper side by means of rivets or otherwise. The upper plate is provided with holes on one edge, into which spiral springs are attached; the said springs are also attached to an iron plate secured to the end bar of the frame or bedstead.

Complainants' counsel objects to so much of the answer as endeavors to construe what Complainants' Exhibit "A" is intended to patent, if that is what the answer means, and will move to have such construction of the patent not considered by the court at the hearing on the ground that the witness has not shown himself qualified as an expert or to answer the question in that regard; secondly, on the ground that the court only can construe what the patent covers.

7 Q. Are you familiar with the mechanical construction of Complainants' Exhibit E, being a bed bottom? And, if yea, please describe its construction.

A. I am; it is a mattress frame with a wire fabric attached to a strip of bar or iron; said fabric is placed upon the lower strip or bar and bent or turned on one edge and secured with an iron plate on top and secured by means of rivets. The fabric is turned over sufficiently on the one edge as to for- a hook on the under side of the lower strip.

164 8 Q. You may state, if you please, what new thing, if any, is shown in the bed bottom illustrated in the Dunks & Ryan patent in suit.

Complainants' counsel objects to the question on the ground that the witness has not shown himself qualified as a patent expert or to answer this question; and, secondly, on the ground that the court only can construe what the patent covers.

A. There is no novelty or new thing in its construction; it is merely a device very familiar in carpentry and mechanics.

9 Q. For how many years prior to the date of the Dunks & Ryan patent in suit had the swing-bar been in use on bed bottoms constructed practically in the same way?

Complainants' counsel makes the same objection- to this question as were made to question No. 8 of this witness'*es* examination.

9 Q. For 10 or 15 years before, substantially as used in the Dunks & Ryan patent.

10 Q. Please name some of the patents, if you can, in which the swing-bar was used and known to the trade prior to May 10, 1881.

Complainants' counsel makes the same objections as to question 8 of this witness'*es* examination.

A. The patents being Defendants' Exhibits A, B, C, and D.

11 Q. State, if you know, the practical difference, if any, between the swing-bar shown in the Dunks & Ryan patent in suit and the swing-bars in the four patents you have just mentioned.

165 Complainants' counsel makes the same objections as to question 8 of this witness'*es* examination.

A. There is no difference in the principle; there is a slight difference in their mechanical construction.

12 Q. State whether the difference, in your opinion, in their mechanical construction affects the substance of the patent or the principle of their operation.

Complainants' counsel makes same objections as to question No. 8 of this witness'*es* examination.

A. It does not.

13 Q. What is there about the Dunks & Ryan patent, if any, directing you- attention to the swing-bar, that is not practical, and whether it affects the value of the alleged invention?

Complainants' counsel makes the same objection as to question No. 8 of this witness'*es* examination.

A. In my opinion the wooden bar or strip is not strong enough for a base to which the fabric can be secured without its pulling out or giving way and rendering the structure unavailable and valueless.

14 Q. How is that defect, if you know, attempted to be obviated by the complainants or the patentees?

Complainants' counsel makes same objections as to No. 8 of this witness'*es* examination.

A. It is attempted to be obviated by the introduction of a
166 third strip or bar, around which the wire is wound and then placed between the upper and lower bars and the whole fastened together by means of rivets or otherwise.

15 Q. Has any such difficulty ever occurred in Complainants' Exhibit E?

Complainants' counsel objects to the question as immaterial.

A. No.

16 Q. Calling your attention to the structure illustrated in the Dunks & Ryan patent in suit and the structure Complainants' Exhibit E, state whether or not the two structures, so far as the swing-bars, so called, are concerned, are identical in mechanical device, structure, material, and in their operation.

Complainants' counsel makes the same objections as to No. 8 of this witness'*es* examination.

A. In my opinion they are not. They differ in the mechanical device and construction. They are made of different material, and the fabric is secured in an entire-different manner. They are in no-wise identical.

17 Q. State whether the fabric as secured to the underlying bar of Defendants' Exhibit "2 Wooden Bars" is thus fastened and secured substantially as the same is secured to the swing-bar in the Dunks & Ryan patent in suit.

Complainants' counsel makes the same objections as to No. 8 of this witness'*es* examination.

A. Yes; substantially the same way.

167 18 Q. And for how many years have you known of the fabric on bed bottoms fastened or secured to the cross-bar of spring bed bottoms as exhibited in defendants' said Exhibit 2 Wooden Bars?

A. I should say from 15 to 20 years.

19 Q. Calling your attention to said Defendants' Exhibit 2 Wooden Bars, state whether the fabric is secured to the same by being drawn over the upper face of the cross-bar and fastened or secured on the outer side of said bar so as to decrease or diminish the strain that would otherwise fall directly upon the tacks or nails securing the same.

Complainants' counsel objects to the question as immaterial.

A. It does; and by so doing diminishes the strain upon the tacks.

20 Q. State whether by securing the web to the cross-bar as you have described in your last answer the web is less liable to draw out and give way than it would be if secured upon the upper face of the bar as appears and is shown in the Complainants' Exhibit A; and, if so, why?

Complainants' counsel makes the same objections as to No. 8 of this witness'*es* examination.

A. Yes; it is less liable to from the fact that the fabric is turned on an angle, as shown in Defendants' Exhibit 2 Wooden Bars, where, as is shown in Defendants' Exhibit Dunks & Ryan Spring-Bar and in their patent in suit, the strain upon the fabric is direct.

Complainants' counsel, not waiving any of the objections
168 taken in the direct examination of this witness (especially as to his qualifications as an expert in patents and patent law), cross-examines him as follows:

21 X Q. How long have you been engaged in the manufacture of woven-wire mattresses?

A. About five or six years.

22 X Q. In answer 6 of your examination you simply attempted to describe the exact device shown and described in the drawing and specifications of Complainants' Exhibit A and not what you claim that such patent is supposed to cover?

A. I described it as the invention appears to be constructed as it appears in the drawings or specifications of the patent in suit.

23 X Q. You don't profess to be a patent lawyer or professional expert?

A. No.

24 X Q. Complainants' Exhibit E has the fabric, the swinging bar, the spiral springs, and the end rails all constructed and combined in the manner shown in Exhibit Model of Complainants' Exhibit E. Am I right?

A. I so understand it; yes.

25 X Q. Are you better acquainted with the st*a*rt of the art prior to the patent in suit than your brother, Charles H. Hard, who finished his testimony to-day?

A. No; I don't profess to be.

26 X Q. When you state, in answer to question 9, that bed bottoms had swing-bars in use practically or substantially constructed for ten or fifteen years in the same way as the Dunks & Ryan
169 patent in suit and from its date were you referring simply to such bars as you claim to be swing-bars in Defendants' Exhibits A, B, C, and D?

A. Yes.

27 X Q. Is there a wide difference in principle, in your opinion, between the manner of attaching the web in Defendants' Exhibit 2 Iron Bars and Defendants' Exhibits A, B, C, and D? I refer espe-

cially to the hooking, as you term it, of the fabric in Exhibit Model of Complainants' Exhibit A.

Counsel for the defendants objects to the question as irrelevant and immaterial and not a legitimate cross-examination, and there is no claim by defendants that the web is fastened to the swing-bar in Complainants' Exhibit A and Defendants' Exhibits A, B, C, and D by the forming of a hook underneath the underlying bar as shown in Complainants' Exhibit E, and defendants will move at the proper time to strike out the answer if one is taken.

Complainants' counsel withdraws the question.

28 X Q. Is the word "wood" printed in any portion of the claims 1 or 2 of Complainants' Exhibit A?

A. No.

29 X Q. Did you know of the alleged attempt to obviate the difficulties alleged by you in your answer 13 before Mr. Charles H. Hard did?

A. No.

30 X Q. When did you first make such a mattress as Complainants' Exhibit E?

170 Counsel for defendants objects to the question as incompetent, irrelevant, and immaterial.

Question withdrawn.

31 X Q. Did you see a swing-bar constructed in the manner shown in Exhibit Model of Complainants' Exhibit E before you had heard of the manner of obviating the alleged difficulties mentioned?

A. No.

32 X Q. The first and second claim of Complainants' Exhibit A are combination claims, are they not?

A. Yes.

33 X Q. Your answer to question 17 simply means, does it not, that the fabric as shown attached to the larger bar of Defendants' Exhibit 2 Wooden Bars is stapled to such larger bar substantially in the same manner as the same is stapled to the lower swing-bar of the patent in suit.

A. It is stapled substantially in the same way.

34 X Q. You say in answer to question 18 that for 15 or 20 years, about, you have known of the fabric in bed bottoms fastened to cross-bar of spring-bed bottoms, as exhibited in Defendants' Exhibit 2 Wooden Bars. You do not know of the fabric having for so long a time been so fastened or secured to swinging woven-wire mattresses, do you?

A. No.

35 X Q. The 15 to 20 years' use, about, referred to by you in your answer 18 is the same as described by your counsel in question 19, is it not?

A. Yes.

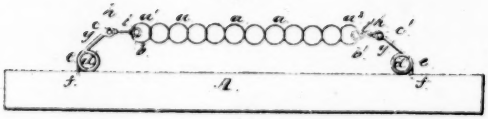
171 36 X Q. In that use the ends of the woven-wire fabric, when the mattress was in use, was that substantially about at right angles to the body of the fabric?

F. Schimming,

Bed Bottom.

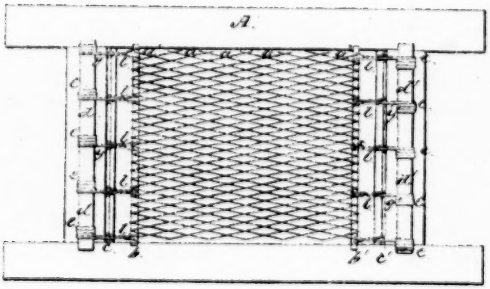
No. 53,888, Patented Apr. 10, 1866.

Fig. 1.



No. 346
Ryan et al.
v.
Nardelet.
} p. 172

Fig. 2.



Witnesses:

Francis D. Pastorius
Jno. Anderson

Inventor:

Frederick Schimming.

A. Yes.

37 X Q. That construction for 15 or 20 years was on the end rail, was it not?

A. Yes.

38 X Q. That use was originally known as having been used by the Hartford Woven-Wire Mattress Company, was it not?

A. Yes.

39 X Q. It does not strengthen the fabric itself to head it at right angles and have a wooden bar pressed into it where it is so bent, does it?

A. No.

HENRY D. HARD.

Subscribed and sworn to before me this 22d day of December, 1887.

S. H. STAFFORD,
Notary Public.

(Indorsed:) Defendants' testimony. Filed June 20, 1888. W. S. Doolittle, clerk.

173 UNITED STATES PATENT OFFICE.

FREDERICK SCHIMMING, of Philadelphia, Pennsylvania.

Improved Bed-Bottom.

Specification forming part of Letters Patent No. 53888, dated April 10, 1866.

To all whom it may concern:

Be it known that I, Frederick Schimming, of Wurtemberg, Germany, now residing in the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an improved sacking for bedsteads; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

(Here follows diagram marked p. 172.)

My invention consists of a sacking constructed of spiral springs and attached to the bedstead by such mechanical contrivance as is hereinafter described.

In order to enable skilled mechanics to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, figure 1 is a side elevation, and Fig. 2 is a plan view.

Similar letters refer to similar parts in the several views.

a' a a a^2, &c., are spiral springs, the adjacent ones interlacing each other.. Through each end one, a' a^2, a rod, b b', passes the entire length.

c c' are rods placed parallel with the rods *b b'*. The centers of rotation of the spiral springs composing the sacking and of the rods *b b'* and *c c'* lie in the same horizontal plane.

d d' are rods or bars resting transversely on the bed-frame A. Around each of them, at intervals, a wire, *e*, is wound or turned, one end, *f*, of which is inserted into the framing, and the other end, *g*, is elevated at an angle and terminates in a hook, *h*, into which the rods *c c'* are received.

The rods *b c* and *b' c'* are connected by the straps *l l*, &c., the ends of which are split to embrace the hooks *h h*, &c., and the end spiral springs, *a' a²*, and hold them in place.

The construction of my sacking precludes all possibility of its getting out of repair. It is strong and durable. When it is to be cleaned the rods *b b'* and *c c'* are slipped out. The springs *e e*, &c., add to its elasticity and springiness.

What I claim as my invention, and desire to secure by letters patent, is—

The sacking or bed-bottom, the straps *l l*, and the springs *e e*, arranged substantially as herein specified and described.

In testimony whereof I hereunto sign my name to this specification in presence of two subscribing witnesses.

FREDERICK SCHIMMING.

Witnesses:

FRANCIS D. PASTORIUS.

W. W. DOUGHERTY.

175 UNITED STATES PATENT OFFICE.

F. STANLEY BRADLEY, of New Haven, Connecticut.

Letters Patent No. 74293, dated February 11, 1868.

Improved Bed-Bottom.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, F. Stanley Bradley, of the city and county of New Haven, in the State of Connecticut, have invented a new and useful improvement in spring-bottoms for bedsteads; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawing, which makes part of this specification, which drawing is a perspective view of the bedstead with the spring-bottom attached.

(Here follows diagram marked p. 174.)

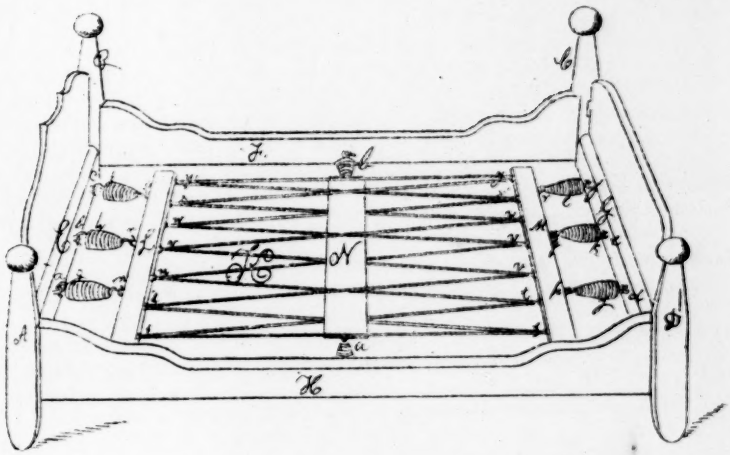
My improvement consists in making the spring-bottom with two cross-bars, to which I attach a common bed-cord by means of loops

F. Stanley Bradley.
Spring Bottoms.
For Bedsteads.

PATENTED
FEB 11 1868

74293

No. 346.
Ryan et al.
vs.
Nard et al
} p. 174



Witnesses.
E. V. Balamin.
R. Fitzgerald.

F. Stanley Bradley

or hooks, (lacing it in the diagonal form, as shown in the drawing,) and in securing or attaching the cross-bars to the two end rails of the bedstead, that is, to the head and foot-rails, by means of spiral springs, so that when the cord is strained tight the pressure on the bottom will act principally on the spiral springs, so that the cords and bars may, as a whole, be pressed down, while the cords will afford or supply all of their usually effective yielding character; thus the two will increase the ease of the bed by their doubly-yielding operation, while guided by the bars L and M.

I make the bedsteads of posts, as A, B, C, and D, and rails, as C, F, G, and H, in any of the usual forms, without regard to any particular shape or proportions, and with or without head or foot-boards. To each of the two end rails E and G, I attach or secure three or any other convenient number of loops or hooks, as represented at *a*, *b*, and *c*, and *d*, *e*, and *f*, into which I hook, or otherwise secure, one end of a spiral spring, as *g*, *h*, and *i*, and *j*, *k*, and *l*, all as represented in the drawing. I make the spiral springs *g*, *h*, and *i*, and *j*, *k*, and *l*, in the conical form, as shown in the drawing, or in any other convenient form, and of the suitable strength. I make the two bars L and M of wood, or any other suitable material, and in the edges next to the end rails I insert three or any other suitable number of eyes or hooks, to correspond with the number in the end rails, as represented at *m*, *n*, and *o*, and *p*, *q*, and *r*, to which I attach the inner ends of the spiral springs *g*, *h*, and *i*, and *j*, *k*, and *l*; and in each bar L and M, on the inner edge, or edge toward the longitudinal centre of the bedstead, I insert seven or any other convenient number of eyes or hooks, through or on to which I pass the cord K, all as shown at *s*, *t*, *u*, *v*, *w*, *x*, and *y*, and *s'*, *t'*, *u'*, *v'*, *w'*, *x'*, and *y'*, in the drawing. And, when thought best, I fit one or more strap or straps across the cords, and attach their ends by means of spiral springs, as represented at N, *a'*, and *b'*, to steady and assist the other springs, as well as to strengthen the cord, and prevent its sagging by its own weight. Thus I combine the benefit of the cord with the spiral springs in both directions, while the bars L and M will steady all of the parts, and thereby give the greatest ease and evenness to the operation of the bed-bottom.

What I claim as my invention, and desire to secure by letters patent, is—

The combination of the spiral springs with the two bars L and M, and the cord K, when the whole is constructed and fitted for use, substantially as herein described and set forth.

F. STANLEY BRADLEY.

Witnesses:
E. W. BALDWIN.
R. FITZGERALD.

177 UNITED STATES PATENT OFFICE.

GEORGE W. LOOMIS, of Hartford, Connecticut.

Letters Patent No. 101,029, dated March 22, 1870.

Improved Spring-Bed Bottom.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, George W. Loomis, of Hartford, in the county of Hartford, and State of Connecticut, have invented a new and useful improvement in spring-beds; and I declare the following to be a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference thereon forming a part of this specification.

(Here follows diagram marked p. 176.)

Figure 1 is a plan view.

Figure 2 is a side elevation.

Like letters indicate like parts in both figures.

The letter *a* indicates a piece of canvas or stout cloth fastened at both ends to the wooden bars *b b'*.

The letter *c* indicates the frame of the bed, to the head and foot pieces of which are fastened the spiral springs *d*, which on one side are fastened directly to one of the bars *b*, but on the other side are attached to the bar *e*.

A stout cord, *i*, is fastened at one end, *f*, to the movable bar *e*, by means of which cord the movable bar *e* and the bar *b'* are triced together, and any desired tension given to the canvas *a*. The cord is fastened at its other end, *g*, to the opposite end of the movable bar *e*.

I claim as my invention—

The combination and arrangement described, of the canvas *a*, bars *b b'*, springs *d*, movable bar *e*, and cord *i*, when constructed as described, for the purpose set forth.

GEORGE W. LOOMIS.

Witnesses:

W. E. SIMONDS.

C. LOOMIS.

G. W. Loomis,

Bed Bottom.

No. 101,029. Patented Mar. 22. 1870.

No 346.
Ryan et al
v.
Hard et al
} p. 176.

Fig. 1.

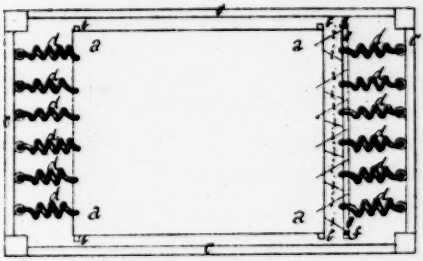
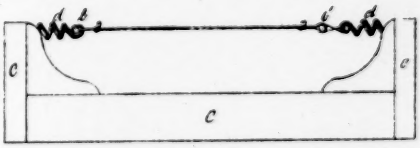


Fig. 2.



Witnesses.

Edwin E. Marvin

Geo. G. Sill

Inventor

George W. Loomis
By Ellis & Simmons
Attys

2 Sheets--Sheet 2.

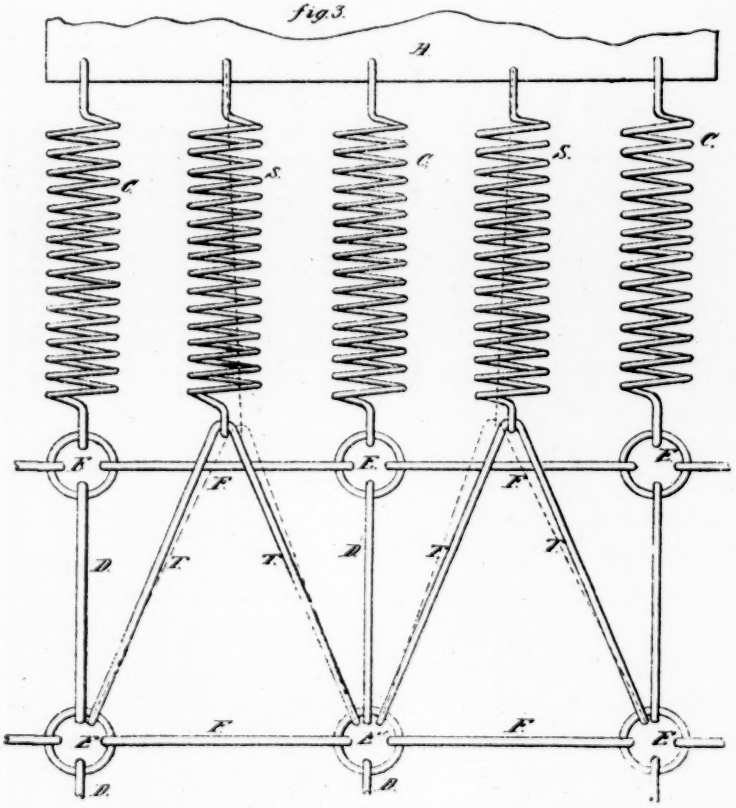
A. TURNBULL & R. L. WEBB.

Bed-Bottoms.

No. 5,312. No 346 Ryan et al } p. 179 Hard et al.

Reissued March 4, 1873.

fig. 3.



Witnesses.

John A. Thumey

A J Gibbs

Inventors.

Andrew Turnbull & Rodolphus L. Webb

By Atty.

John E. Earle.

178

2 Sheets--Sheet 1.

A. TURNBULL & R. L. WEBB.

Bed-Bottoms.

No. 5,312. No. 346 Ryan et al. v. Hard et al. } p. 178

Reissued March 4, 1873.

Fig. 1.

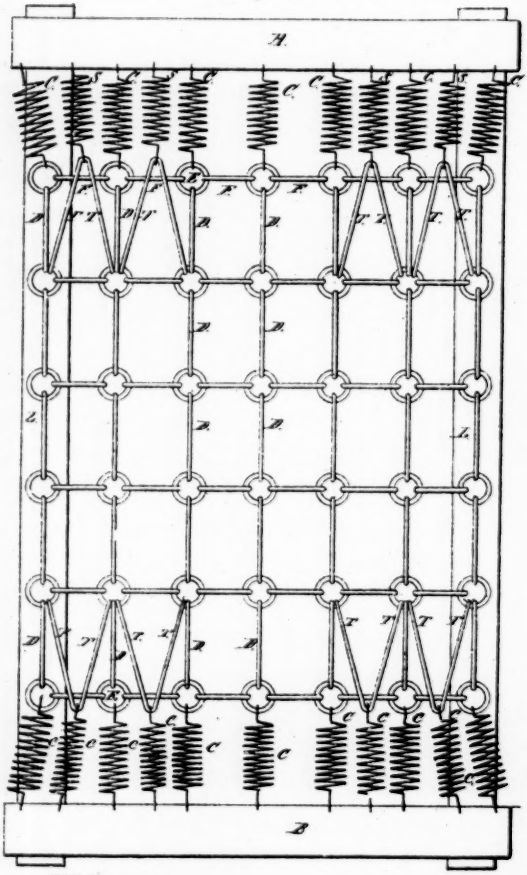


Fig. 2.

Witnesses.

John N. Shumway

A. J. Tibbits

Inventors.

Andrew Turnbull & Rudolphus L. Webb

By. Atty. John C. Eaile

ANDREW TURNBULL and RODOLPHUS L. WEBB, of New Britain, Connecticut, assignors, by mesne assignments, to the National Wire-Mattress Company, of same place.

Improvement in Bed-Bottoms.

Specification forming part of Letters Patent No. 125,421, dated April 9, 1872; Reissue No. 5185, dated December 10, 1872; Reissue No. 5312, dated March 4, 1873.

To all whom it may concern:

Be it known that we, Andrew Turnbull and Rodolphus L. Webb, of New Britain, in the county of Hartford and State of Connecticut, have invented a new improvement in bed-bottoms; and we do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

(Here follow diagrams marked pp. 178 & 179.)

Figure 1, a plan view of the bed complete; in Fig. 2, a side view; and in Fig. 3, a diagram of one end.

This invention relates to an improvement in spring bed-bottoms, the principal object being the construction of a bed in which that part in the immediate vicinity of the occupant will yield and conform to his body; and it consists in a net-work formed of links jointed together and made elastic longitudinally by springs.

A represents the transverse bar at the head, and B the corresponding bar at the foot. To these bars are attached springs C, by preference spiral springs, the action of which is longitudinal with the bed-bottom. From these springs, at one end, extends a succession of jointed rods, D. These rods are, by preference, connected by rings E, but may be united by other suitable connections. Transversely to the rods D other rods F are arranged, as denoted in Fig. 1. Such rods D D and F F constitute, when combined together, jointed links. It will be better to make the rods F a little longer than the distance between the connections, which will allow the longitudinal lines of rods to be depressed somewhat before the said transverse rods come to a bearing in their next adjoining connections. Therefore, when one of the longitudinal lines of rods is depressed, the next are not affected until the depression has been sufficient to bring the connections to a bearing. These jointed rods F, while preferably made of sufficient length to extend from one ring to another, as seen in Fig. 3, may be made in the form of chains. At the sides no connection is made with the frame—the whole length is left free from end to end. The result of this construction is that (a person lying upon one part of the bed) the bot-

tom will yield to conform to the body without being affected or scarcely moved at any other part. Thus, a person lying upon one side of the bed and another person moving upon the opposite side does not necessarily move the bed beneath or disturb the other person. As an auxiliary spring to the spring before mentioned we arrange intermediate springs S with a triangular draw-rod, T T, extending from the said springs S to the links comprising the bed-bottom. These springs, while acting as auxiliary to the other springs, also aid in facilitating the object of this invention; for suppose, Fig. 3, the weight to be directly over the point E′, and that point depressed, this will take upon the spring in that longitudinal line, and, through the arm of the draw-rod which connects that point to the intermediate springs S, will draw upon these intermediate springs, as denoted by broken lines in Fig. 3. While it is preferable to attach a single spring to each longitudinal line of jointed rods, it will be evident that one stronger spring may be connected to two lines.

To construct the frame so that the bed may be packed into small compass and at the same time be sufficiently strong at each end of the two sides L L, we form a seat or socket, *a*, to receive the bars A B; the said seat constructed with a flange or upward projection, *d*, upon the inside of the said bars B, and against which they bear to resist the strain of the springs, this flange extending nearly to the top of the bar, as seen in Fig. 2; and when in position on the bedstead the strain of the springs will hold them in place.

As a matter of convenience for removal, the flanges may be secured to the bars A B by a screw or otherwise. Therefore, to pack the bedstead for transportation or storage, the bars A may be easily taken from the bars L and folded together or rolled with the bed-bottom, and which, with the bars L, may thus be arranged in a very compact form.

We claim as our invention—

181 1. A bed bottom composed of jointed links D D F F, disconnected from the side rails of the frame, but made elastic longitudinally by springs C C, substantially as described, for the purpose specified.

1. In combination with the subject-matter of the first clause of claim, the auxiliary springs S and their triangular draw-bars T T, substantially as specified.

3. In a frame for bed bottom, consisting of the tranverse bars A B and longitudinal bars L L, the seat or socket *a d*, by which the said transverse bars are attached to the longitudinal bars, substantially as described.

ANDREW TURNBULL.
RODOLPHUS L. WEBB.

Witnesses:
F. L. HUNGERFORD.
JOHN WALSH.

(No Model.)

182

C. H. HARD.

FOLDING WIRE MATTRESS.

No. 318,728. Patented May 26, 1885.

No. 346.
Ryan et al.
Hard et al.
p. 182

Fig. 3.

Fig. 2.

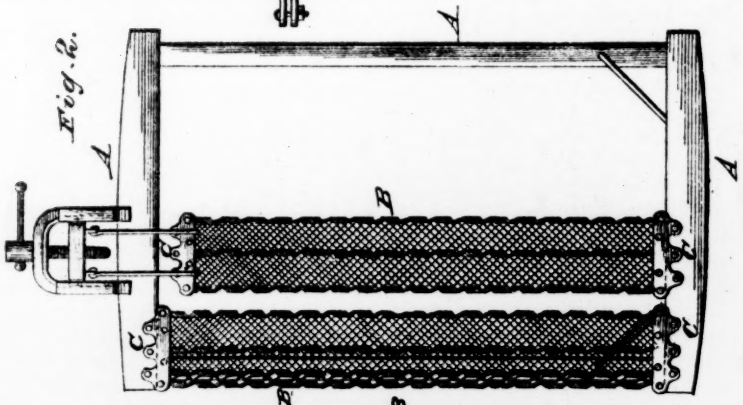
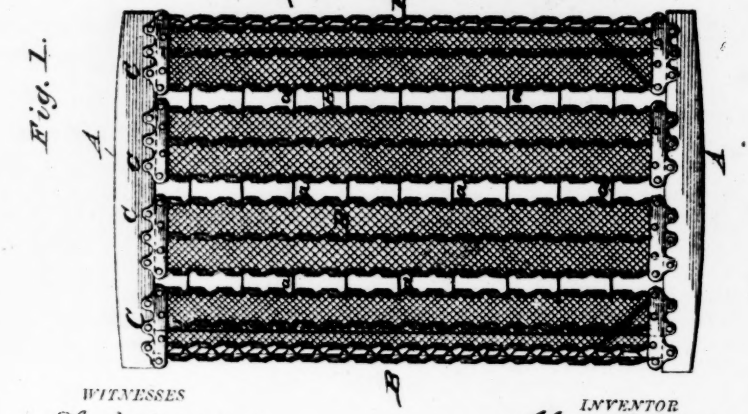


Fig. 1.



WITNESSES

Phil C. Dietrich

F. R. Keyworth

INVENTOR

Chas H. Hard

by

W. Alexander

Attorney

183 UNITED STATES PATENT OFFICE.

CHARLES H. HARD, of Oneida, New York.

Folding Wire Mattress.

Specification forming part of Letters Patent No. 318,728, dated May 26, 1885. Application filed May 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, Charles H. Hard, of Oneida, in the county of Madison and State of New York, have invented certain new and useful improvements in bed bottoms of wire and other fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

(Here follows diagram marked p. 182.)

Figure 1 is a top view of my improved mattress applied to a frame. Fig. 2 is a similar view of the same, showing one of the wire strips down previous to applying the tension device for drawing or stretching it up to the frame to be fastened. Fig. 3 is a view of one end of one of the strips, showing my mode of fastening the netting to the end pieces.

This invention relates to wire mattresses; and it consists in such peculiarities of construction as will enable the mattress to be easily folded in a small compass for transportation or storage and set up, all of which will be fully understood when taken in connection with the annexed drawings.

A represents a wooden frame, which may be constructed of any suitable size.

B B B B represent sheets or strips of wire cloth or fabric, the edges of which I preferably re-enforce.

C C C C represent metal plates, which are suitably secured at each end of the wire sheets, the said plates being perforated at their outer edges, as shown in the drawings, so they may be tacked or secured to the frame.

a a represent detachable metallic links, which connect the sides of the sheets of wire fabric at suitable intervals. It is obvious that, instead of employing these links, I may adopt any other convenient and appropriate method of uniting the strips, though I prefer the way just described. By forming my mattress in sheets or strips they may be turned down one upon the other and then rolled in a compact form for transportation.

When it is desired to set the bed or mattress up for use I employ a tension device—for instance, one like or similar to that represented in the drawings—for tightening the strips or sheets of wire fabric. I first tack, screw, or otherwise secure the metallic plates at one end of the strips to one end of the frame, then by means of a tension

device applied to the metal plate at the opposite end of each sheet or strip I draw them to the proper degree of tension and likewise secure them. I preferably adopt tacks or pins to secure the metal plates to the head and foot boards of the frame, but do not confine myself to this means of doing it, as there are various other ways quite as effective.

The strips B, being considerably shorter than the distance between the end rails of the bed-frame, are necessarily made quite narrow, so that a great degree of tension may be given them without exerting great force. An equal degree of tension could not be given to wide strips or to the wire bottom made in one piece. Moreover, different degrees of tension may be given to the strips by securing them farther in or out on the upper surfaces of the end rails by means of screws or pins passing through their outer row of holes; or, if desired, each strip may be given a different degree of tension, as each is provided with end plates in no way connected with those of the other strips. By increasing the number of wires along the side edges of the strips—that is, by re-enforcing the said edges—the latter serve to stay the strips laterally, and will give the wires *a* stiffer connecting-points. The connecting-wires *a* unite the strips so that all of them will swing together laterally, and will form a single bed-bottom.

Having described my invention, I claim—

The combination, with the end rails of a bed-frame, A, of the narrow strips B, of woven wire, re-enforced along their side edges by additional wires, and provided with the end plates, C, adapted to be connected farther in or out onto the upper surface of the end rails, according to the amount of tension required, and the stiff detachable wires *a*, connecting at intervals the adjacent edges of the strips B, substantially as specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES H. HARD.

Witnesses:
F. O. McCLEARY.
A. E. DOWELL.

184 *Stipulations as to Exhibits.*

United States Circuit Court, Northern District of New York.

JAMES B. RYAN *et al.*
vs.
CHARLES H. HARD *et al.*

It is hereby consented that the printed copies of exhibits in the printed records of the respective parties hereto may be filed in place of the originals & used in all respects as the originals herein.

Dated July 2, 1888.

JENKINS & DEVEREUX,
Solicitors for Def'ts.
LEONARD B. SUTRO,
Solicitor for Compl'ts.

Indorsed: Copy stipulation as to exhibits. Filed Nov. 14, 1888. W. S. Doolittle, clerk.

United States Circuit Court, Northern District of New York.

JAMES B. RYAN *et al.*
vs.
CHARLES H. HARD *et al.*

The following exhibits in the above case being on file in the office of the clerk of this court, viz:

Complainants' Exhibit E,
Dunk & Ryan Fig. 3,
Def'ts' Exhibits 2 Wooden Bars,
2 Iron Bars,
3 Iron Bars,
Dunk & Ryan Swing-Bar,

it is hereby stipulated that the clerk may, at the request of either party, transmit the same to the clerk of the U. S. Supreme Court for use on the argument of the appeal herein.

LEONARD B. SUTRO,
Complainants' Solicitor.
JENKINS & DEVEREUX,
Defendants' Solicitors.

Indorsed: Stipulation as to use of mechanical exhibits on argument of appeal in U. S. Supreme Court. Filed Jan. 7, 1889. W. S. Doolittle, clerk.

185 *Decision.*

United States Circuit Court, Northern District of New York.

JAMES B. RYAN *et al.*
vs.
CHARLES H. HARD *et al.*

Leonard B. Sutro, for the complainants; James B. Jenkins, for the defendants.

COXE, *J.:*

This is an equity action founded upon letters patent No. 241,321, granted to C. H. Dunks and J. B. Ryan May 10, 1881, for an improvement in "swing woven-wire bed bottoms."

The essential feature of the invention consists in attaching the woven-wire fabric to a swinging cross-bar, which in turn is suspended by helical springs from the end rails of the bedstead. The patentees assert that by this arrangement are secured all the advantages of a swinging bed—elasticity, durability, and resiliency—while sagging in the center and the sudden jerky motion common in some bed bottoms are avoided.

The claims in question are as follows:

"1. In a bed bottom, the combination, with an end rail, of the

links or springs, the section of woven-wire fabric, and an intermediate connecting transverse bar, provided upon one edge with a throat adapted to receive the ends of the wire and upon the opposite
186 side with means of attaching the links or springs, substantially as described.

"2. In a bed bottom, the combination, with the end rail, of the links or springs, the section of woven-wire fabric, and an intermediate connecting bar consisting of a part to which the fabric is attached and a part adapted to protect the mattrass from contact with the ends of the wire, substantially as set forth."

Every element of the combination covered by these claims was concededly old and well known at the date of the patent. Woven wire had been used for more than twenty-five years as a fabric for bed bottoms. It had been stretched from end rail to end rail and fastened by means very similar to that described in the patent. Bed bottoms made of canvas, cord, sacking, and jointed links attached to "swing-bars" had been suspended by helical springs in analagous combinations. If, for instance, a fabric of woven wire were substituted for the canvas of the Loomis structure, it would probably be an exact anticipation of the complainants' combination. Is there patentable novelty in this change? It is thought not. If the patentees had been the first to introduce woven wire into the art, there would be more difficulty in reaching this conclusion, but they were not. All that they did was to suspend a fabric well known as a bed bottom in substantially the same manner that other fabrics used for that purpose had been suspended. If the patentees, instead of using woven wire, had used some other woven fabric—woven twine or tape, for example—if their claims had included carpet or rubber cloth instead of woven wire, it will hardly be contended that they would be entitled to take rank as inventors.
187 Why, then, should the use of woven wire give them this distinction? Its peculiar advantages above referred to as a material for beds were not discovered by them. The idea of swinging a bed bottom was not theirs. They have substituted one well-known material for another and nothing more. It was thought, after reading the thorough and painstaking brief of the complainants' counsel, that the patent might be saved because of the peculiar character of the material and the supposed difficulty of fastending it to the "swing-bars," but this theory is untenable when it is remembered that it was fastened to the rigid end rails by similar devices, the changes being only those which would occur to a mechanic who had skill enough to adapt the heavy and cumbersome joint to the new circumstances.

The court would feel more hesitancy in adopting this view had not the precise question, upon facts very nearly parallel, been decided in Ames *vs.* Carlton Spring Bed Co., 24 Fed. Rep., 785. At page 787 Judge Blodgett says: "It is true that the fabric shown in the Simmons patent differs from that shown in the Kneppler and Boyington patent, but after the introduction of the woven-wire fabric for bed-bottom purposes there was no possible room for invention in substituting the woven-wire fabric for the wooden-slat

and wire fabric in Simmons' device, and when that was done you had exactly, in construction and mode of operation, the Boyington bed and all there was of merit in Kneppler bed." This language is equally applicable to the case at bar.

The bill must be dismissed.

(Indorsed:) Decision, Coxe, J. Filed Aug. 13, 1888. W. S. Doolittle, clerk.

188 *Petition of Appeal.*

United States Circuit Court, Northern District of New York.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. Congle, and Richard W. Elliott, Complainants and Appellants,
vs.
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD, Defendants and Appellees.
} In Equity.

To the honorable the Supreme Court of the United States:

The appeal of James B. Ryan, Francis A. Hall, William R. Congle, and Richard W. Elliott, complainants and appellants, respectfully showeth—

That heretofore and on and about the seventh day of April, 1887, the above-named complainants and appellants filed their bill of complaint in the circuit court of the United States for the northern district of New York against the above-named defendants and appellees, alleging that letters patent of the United States were granted to Charles H. Dunks and James B. Ryan on the 10th day of May, 1881, and numbered 241,321, for improvements in swing woven-wire bed bottoms; that said letters patent had been duly assigned to said complainants and appellants for the Middle and Eastern States of the United States; that the said defendants infringed said letters patent and infringed them in violation of said complainants' rights; that the said bill in equity prayed for an in-

189 junction to restrain the said defendants from said infringements and for an accounting of damages and profits resulting from said infringements.

That on and about the 4th day of July, 1887, the above-named defendants filed an answer to said bill, denying that said Charles H. Dunks and James B. Ryan were the original, true, and first inventors of said invention described in said letters patent; denying that the above-named defendants infringed the rights of the above-named complainants and appellants in said letters patent, and averring knowledge and public use of the said invention of the said Dunks and Ryan at length in said answer; also that the invention was anticipated by and described in the letters patent named in said answer; also want of novelty; to which answer other alleged anticipating patents were thereafter added by amendment.

That thereafter and on or about the first day of August, 1887,

complainants and appellants filed a general replication to such answer; that thereupon testimony for final hearing was taken by the respective parties.

That on the 19th day of June, 1888, the case came on for final hearing; that on the 30th day of August, 1888, a decree was entered in said circuit court dismissing the said bill of complaint in the following language:

"At a special term of the circuit court of the United States of America for the northern district of New York, in the second circuit, held at chambers in Utica, N. Y., on the 30th day of August, A. D. 1888.

Present: The Honorable Alfred C. Coxe, judge.

190 JAMES B. RYAN *et al.* *ag'st* CHARLES H. HARD *et al.* } No. 5622.

This cause having come on to be argued before Hon. Alfred C. Coxe, judge, at a stated term of this court held at Canandaigua on the 19th and 20th days of June, 1888, and after due consideration a decision having been filed dismissing the bill of complaint, it is, on motion of Jenkins and Devereux, solicitors for defendants—

Ordered, adjudged, and decreed that the bill of complaint be, and the same is hereby, dismissed with costs to defendants to be taxed."

That afterwards and on and about the 1st day of October, 1888, a judgment for costs in pursuance of said decree was entered in said circuit court for one hundred and eighty-three $\frac{10}{100}$ dollars in favor of said defendants and appellees against said complainants and appellants; that said decree and judgment and each and every part thereof were, as these complainants and appellants are advised, wholly erroneous, and they feel aggrieved thereby.

Wherefore these appellants appeal from the whole of said decree and judgment of said circuit court of the United States and from each and every part thereof, and respectfully pray that the decree and judgment of said circuit court and the bill, answer, pleadings, depositions, evidence, and proceedings in the said cause may be sent to the Supreme Court of the United States without delay, and

191 that the Supreme Court will proceed to hear the said cause anew, and that the said decree and judgment of the circuit court and every part thereof may be reversed and a decree made in conformity with the prayer of said bill of complaint, with costs, or such other decree as to the said Supreme Court shall seem just.

LEONARD B. SUTRO,
Solicitor and of Counsel for Complainants.

The above appeal is hereby allowed.
Dated N. Y., October 10, 1888.

E. HENRY LACOMBE.

Due and timely service of a copy of the foregoing appeal is hereby admitted.

Oneida, N. Y., October 16th, 1888.

JENKINS & DEVEREUX,
Solicitors for Respondents, Oneida, N. Y.

Indorsed: Petition for appeal. Filed Oct. 18, 1888. W. S. Doolittle, clerk.

192 *Bond on Appeal.*

Circuit Court of the United States of America for the Northern District of New York, in the Second Circuit.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. Congle, and Richard W. Elliott, Complainants and Appellants,
vs.
CHARLES H. HARD, JOHN J. CRAWFORD, and HENRY D. HARD, Defendants and Appellees.
} Bond for Costs.

Know all men by these presents that we, William H. Walker, of No. 109 Leroy street, New York city, and George Davis, of No. 454 Canal street, New York city, are held and firmly bound unto the above-named appellees in the sum of five hundred dollars, to be paid to the said appellees; for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, executors, and administrators, jointly and severally, firmly by these presents.

Sealed with our seals and dated the ninth day of October, in the year of our Lord one thousand eight hundred and eighty-eight.

Whereas the above-named appellants have prosecuted their appeal to the Supreme Court of the United States to reverse the decree and judgment rendered in the above-entitled suit by the judge of the circuit court of the United States for the northern district of New York:

193 Now, therefore, the condition of this obligation is such that if the above-named appellants shall prosecute said appeal to effect and answer all costs if they shall fail to make the said appeal good, then this obligation shall be void; otherwise the same shall be and remain in full force and virtue.

WILLIAM H. WALKER. [L. S.]
GEORGE DAVIS. [L. S.]

Sealed and delivered and taken and acknowledged this 9th day of October, 1888, before me—

JOHN A. SHIELDS,
U. S. Comm'r, S. D. of N. Y.

UNITED STATES OF AMERICA,
Southern District of New York, } *ss:*

William H. Walker and George Davis, being duly sworn, do de-

pose and say each for himself that he is worth the sum of one thousand dollars over and above all his just debts and liabilities.

WILLIAM H. WALKER.
GEORGE DAVIS.

Sworn to this 9th day of October, A. D. 1888, before me—
JOHN A. SHIELDS,
U. S. Commissioner, S. D. of N. Y.

(Indorsed:) Bond for costs on appeal to U. S. Supreme Court. Bond approved as to form, amount, and sufficiency of the sureties Oct. 10, 1888. E. Henry Lacombe. Filed Oct. 11, 1888. W. S. Doolittle, clerk.

194 *Citation.*

UNITED STATES OF AMERICA, *ss:*

To Charles H. Hard, John J. Crawford, and Henry D. Hard, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States, to be holden at the city of Washington, D. C., on the second Monday of October, eighteen hundred and eighty-nine, pursuant to an appeal filed in the clerk's office of the circuit court of the United States for the northern district of New York, wherein James B. Ryan, Francis A. Hall, William R. Congle, and Richard W. Elliott are appellants and you are appellees, to show cause, if any there be, why the decree and judgment in the said appeal mentioned should not be reversed and speedy justice should not be done to the parties in that behalf.

Dated New York, October 10, 1888.

E. HENRY LACOMBE.

195 Due and timely service of the foregoing citation is hereby admitted.

Oneida, N. Y., October 16th, 1888.

JENKINS & DEVEREUX,
Solicitors for Respond'ts, Oneida, N. Y.

[Endorsed:] U. S. Supreme Court. James B. Ryan *et al.*, appellants, *vs.* Charles H. Hard *et al.*, appellees. Citation and admission of service. Leonard B. Sutro, sol'r for appellants, 206 Broadway, New York city, N. Y. Original. U. S. circuit court, N. D. of N. Y. Filed Oct. 18, 1888. W. S. Doolittle, clerk.

196 UNITED STATES OF AMERICA, } *ss:*
Northern District of New York, }

I, William S. Doolittle, clerk of the circuit court of the United States of America for the northern district of New York, in the second circuit, do hereby certify that the foregoing pages, numbered from 1 to 195, inclusive, contain a true and complete transcript of the record and proceedings had in said court in the case of James

B. Ryan, Francis A. Hall, William R. Congle, and Richard W. Elliott *vs.* Charles H. Hard, John J. Crawford, and Henry D. Hard, as the same remain of record and on file in said office or have been stipulated between the solicitors for the respective parties.

In testimony whereof I have caused the seal of the said court to be hereunto affixed, at the city of Utica, in the northern district of New York, in the second circuit, this seventh day of January, in the year of our Lord one thousand eight hundred and eighty-nine, and of the Independence of the said United States the one hundred and thirteenth.

Seal of the U. S. Circuit Court, Northern District N. Y.

W. S. DOOLITTLE, *Clerk.*

Endorsed on cover: Case No. 13,529. N. New York C. C. U. S. No. 346. James B. Ryan, Francis A. Hall, William R. Congle, and Richard W. Elliott, appellants, *vs.* Charles H. Hard, John J. Crawford, and Henry D. Hard. Filed April 3, 1889.

Office Supreme Court U. S.
FILED.
APR 23 1892
JAMES H. McKENNEY,
CLERK.

United States Supreme Court.

JAMES B. RYAN *et al.*,
Appellants,

vs.

CHARLES H. HARD *et al.*

No. 346.

BRIEF FOR APPELLANTS.

Appeal from a decree of the Circuit Court of the United States for the Northern District of New York, dismissing a suit in equity for the infringement of Letters Patent issued May 10, 1881, to C. H. Dunks and J. B. Ryan, for a Swing Woven Wire Bed Bottom.

The patent in suit is printed at page 67, folio 111. It was issued May 10, 1881, to Charles H. Dunks and J. B. Ryan. Upon June 17, 1884, Dunks conveyed his interests within the Middle and Eastern States to the plaintiffs, Richard W. Elliot and Wm. R. Cougle, by an instrument recorded in the Patent Office June 23, 1884 (p. 59). Upon February 12, 1887, Elliot and Cougle conveyed their interests to the plaintiff Francis A. Hall, but reserving equal rights with him in the City of New York. This instrument was recorded August 27, 1887 (p. 60).

Therefore at the commencement of this action the rights in the patent for the Middle and Eastern States were vested in the four plaintiffs, James B. Ryan, one of the original patentees, and the three owners of the rights of the other patentee within that territory. Upon April 7, 1887, they filed a bill in equity against the defendants alleging infringements within the said territory. The answer denied the validity of the patent and charged want of novelty and of patentability, and denied infringement (fols. 13–19).

The case was heard at Circuit before Judge Coxe on the pleadings and proofs. The Court held that the patent was void for want of novelty and dismissed the bill upon this ground. The decision of Judge Coxe is printed at folios 185–187.

Specification of Errors.

The following errors are asserted and intended to be urged by the appellants:

1. The Court erred in holding that the patent in suit was void for want of novelty and that the bill should be dismissed upon that ground.

2. The patent is valid as a patent for a double elastic swinging bar, in combination with a woven wire mattress and spiral springs, and adapted to receive and hold firmly the ends of the woven wire between its two surfaces and in horizontal plane.

3. The defendants are infringers, and the plaintiffs are entitled to a final decree and to an accounting as prayed in their bill.

Scope of the Patent.

This is a patent for an improvement in woven wire bed springs. At the date of the plaintiffs' patent

these bed springs or bed bottoms were made as follows: A sheet of the well-known woven wire fabric was fastened between two rigid wooden end rails; the ends of the woven wire were carried over the upper surfaces of these rails and were bent down over the further edges; a wooden cleat was then nailed over the bent ends of the woven wire and at right angles to the bed (see diagram, p. 76; p. 23, fols. 41–2). Elasticity of the fabric is then secured by drawing the end rails further apart until the fabric becomes subject to a tension of about 3,000 pounds (fol. 47). The defendants concede this construction (fol. 154). "The manner of attaching woven wire fabrics to wooden bars in wire mattrasses, as shown in "Defendants' Exhibit Two Wooden Bars," with the fabric bent over the outer and upper edge of the larger bar, and subjected to sufficient strain to draw the wire web in its proper shape is held more firmly and securely by its being drawn rigidly over the edge of the bar. The *immense strain of the fabric when it is stretched tight* sinks it convolutions in the sharp edge of the bar, and with a sufficient number of double-pointed tacks driven over the edges of the fabric into the wood and the overlying cap, strap or batten nailed or riveted firmly over the ragged edge of the fabric has been found sufficient to sustain almost any amount of weight. * * * The fabric being drawn over the edge of the bar forms a hook." And when the defendant Hard testifies, at folio 133, that the plaintiffs' device is neither new nor novel, it is because he says he believes that the plaintiffs' device is the equivalent of this mode of construction. He says, at folio 133, that the manner of attaching the fabric to wooden bars has been used for twenty years, and, at folio 146, he says that "Defendants' Exhibit Two Wooden Bars" illustrates the manner of attaching woven wire fabrics to end bars as used for twenty years. And, at folio 167, defendant says that in this exhibit "the fabric is secured

by being drawn over the upper face of the cross-bar and fastened or secured on the outer side of the said bar, so as to decrease or diminish the strain that would otherwise fall directly upon the tacks or nails securing the same."

This mode of construction, although in use for over twenty years, and while woven wire was supplanting all other fabrics, has obvious disadvantages. The strain upon the bed when in use "has the same effect that a sudden jerk or pull would have upon a man's arm were his other arm fastened to a rigid end bar without end springs to relieve the strain. His arm would have all the strength and elasticity drawn out of it, and so does the woven wire when so fastened" (fol. 34). An examination of the structure of the woven wire fabric will show the truth of this statement. Again, the wire under pressure or tension is liable to break and pull out where it is drawn over the sharp edge of the larger of the two wooden bars at right angles (fol. 42).

These defects are obviated by the plaintiffs' invention. It consists of a cross-bar constructed in two parts. The upper part is preferably made of iron (fol. 112). In practice it is found in some respects advantageous to make both parts of iron (fol. 43). The ends of the woven wire are inserted between the two parts and the parts are then riveted together. This holds the fabric firmly. Spiral springs attached to the rigid end rails are then hooked into holes made in the upper part of the double bar. It is still necessary to subject the woven wire to tension, but the tension may now be made 500 pounds less than before (fol. 53).

A bed bottom thus constructed has the following characteristics:

1. The woven wire fabric is about one foot shorter than in the old beds (fol. 54). This shortening of the fabric adds greatly to the durability of the bed as a spring bed.

2. The upper surface of the double bar, preferably made of sheet-iron, is in substantially the same plane as the woven wire fabric. This is important, for if the construction required a raised strip so as to produce a ridge in the bed, the bed would be unsalable. The swinging bar must not be heavy or clumsy (p. 2, at top).

3. The two parts of the bar have their broad surfaces parallel with the woven wire fabric, and, as constructed, necessarily have some elasticity. This elasticity is greater when a wooden strip is used for the lower part of the bar, and the use of wood is mentioned in the patent "as an advantage in that respect" (p. 69, at top). The slight elasticity of the two strips is a distinct advantage; it helps to relieve the strain upon the woven wire and holds it more firmly when in use (fols. 32, 77, 38).

A woven wire bed thus constructed is more elastic than in the former construction, and will last three or four times as long (p. 17, &c.).

This invention has practically displaced the forms in use before plaintiffs' patent, and is conceded to be the first patent for a swinging woven wire bed bottom (pp. 18–19, 27, 28, 31, 57, 58).

ARGUMENT.

1.

The double spring bar of the Ryan patent is not described or claimed in any prior patent or publication. The combination of a swing bar with a woven wire fabric and spiral springs is entirely novel. This patent discloses the only practical way of sus-

pending woven wire from helical end springs. It is impossible to fasten wire to any of the constructions shown in the defendants' exhibits; and the defendants themselves do not claim that wire has been or can be fastened to them. The Circuit Court was far misled when it was brought to say at folio 186, "*Every* element of the combination covered by these claims was concededly old and well known at the date of the patent."

2.

The Schimming Patent of 1866, Defendants' Exhibit A, page 105, does not even possess resemblance to the Ryan patent. The bed bottom of this patent consists of interlacing elastic rings something like the split rings on a watch chain. A rod is run through the end rings, a thing impracticable to be done with a woven wire fabric, because the ends would at once pull out. The end rings are then fastened to split leather straps. The other ends of these straps are hooked upon the ends of stout wires. These wires are wound around other rods resting on the bed frame and so as to leave the ends of the wires projecting upwards and bent into hooks adapted to receive the straps, and also a rod which is passed through the bent ends of the wires so as to hold them in place. Other differences are pointed out at folio 36, but it is unnecessary to spend any time over this "anticipation."

3.

The Bradley Patent of 1868, Defendants' Exhibit B, at page 106, is a patent for a vain attempt to make a spring bed out of the old-fashioned bed cord bed.

The patent takes two stout wooden frames. Hooks are screwed into these, and the bed cord is strung between these hooks. Upon the opposite sides of these frames other hooks are inserted and into these are fastened helical springs which in turn are fastened to the end rails of the bedstead. Here is certainly a "swinging bar," to which the defendants are welcome if they will only use it and not our double bar. This bar is necessarily thick and clumsy; for it must be large enough to allow hooks to be fastened into it large enough to hold bed cords. Its surface is elevated above the surface of the bed cords and the springs and will wear and tear the bedding. The eye hooks will draw out when then the bar shrinks or seasons. It is not practicable to fasten woven wire to such a bar and no one has ever tried to do it. And as Mr. Ryan well says (fol. 35): "The thickness of the bar prevents its having any yielding flexibility and it is only a stiff, rigid obstruction under the bedding, as well as the centre slat [also made a part of patent] and can only be compared, in my opinion, to railroad ties or floor joists so far as its useful operation is implied in a bed bottom."

4.

The Loomis Patent of 1870, Defendants' Exhibit C, page 108, is a patent for a canvas bed bottom. The canvas is fastened at both ends to two wooden bars. These bars are connected with spiral springs which are fastened to the end rails of the bed frame. At one end the spiral springs are connected directly with the bar to which the canvas is fastened; but at the other end the springs are fastened to a third bar *e*, "a stout cord *i* is fastened at one end, *f*, to the movable bar *e*, by means of which cord the movable

bar e and the bar b^1 are triced together and any desired tension given to the canvas." This cord runs between the two bars like a shoestring, and is intended to take up the slack of the canvas.

This is the patent which is cited against us in the decision of the Circuit Court. "If," says the Court, "a fabric of woven wire were substituted for the canvas of the Loomis structure it would probably be an exact anticipation of the complainants' combination."

That is to say, if what never has been done, and never can be done, should be done, something serious may follow. Such substitution cannot be made except by introducing the peculiar double spring bar of the patent.

5.

The Turnbull and Webb Patent of 1873, Defendants' Exhibit D, at page 109, is the only other patent cited by the defendants as an anticipation. This patent does not contain any bar at all, but shows a bed bottom made of links in combination with spiral end springs. It has nothing to do with this case.

6.

Having now gone through the exhibits by which the defendants seek to show the lack of novelty in plaintiffs' patents the results may be summarized as follows:

1. The use of spiral end springs in a swinging bed bottom was old and well known at the date of the Ryan patent.

2. The use of a single wooden bar as a means of connecting a rope or canvas bed bottom with spiral springs was also old.

These facts have little or nothing to do with this case. In the first place there is an important qualification to be made to the weight to be given to the defendants' exhibits. None of these patents is for a woven wire bed, or for an operative or successful spring bed. Although patented many years before the Ryan invention, they were entirely unknown to the trade (fols. 93; 96). Yet the decision of the Circuit Court treats this patent as if it were a patent for an improvement in bed cord or canvas beds, by simple substitution of one fabric.

Now the operation of a bed cord or canvas bed is entirely different in principle from a woven wire bed.

The difficulty with cord or canvas is the lack of tension. When the bed is new the tension is only from 300 to 500 pounds (fol. 34). This makes it possible to use a single wooden bar to fasten the rope or canvas to, but there must be connected with this a device for tightening up the bed, either by running the rope through hooks as in the Bradley bed, or by a device for lacing up the bed as in the Loomis bed. And the total lack of elasticity in the rope and canvas is imperfectly remedied by the spiral end spring.

The difficulty with the old woven wire springs is their excessive tension, which makes the fabric liable to break and sag. No practical way of obviating the difficulty has been found except by the mode disclosed by the Ryan patent. It is impossible to fasten woven wire to a single swing bar like that in the Bradley or Loomis patent. The necessary tension would pull it off from the bar (fol. 34). Before making his invention the plaintiff Ryan experimented with single bars and found that they could not be used, and that they would also split and break (fol. 33) when subjected to the necessary tension (fol. 54).

The objections to a single bar are well summarized at folio 36, referring to the *Loomis* bars, and this evidence is wholly undisputed:

" Like the Bradley and Schimming bars, they are single wooden bars wholly unsuitable for having woven wire attached to them, because they have no metal top plate or bar to clamp and hold firmly the ends of the woven wire under strain or tension, and the ends of the end springs being attached directly to these wooden bars without the assistance of a metal clamping top bar, will allow the springs to wear and tear through the canvas and wooden bars, thus destroying the entire bed bottom. Furthermore, wooden spring bars without the clamping metal top bars are extremely objectionable, because wood in its natural state contains knots, checks, splits and unsound spots and is very liable to warp and twist all out of shape and cannot be relied upon for swing bars without the assistance of metal bars to hold them in place and prevent their splitting or breaking."

From this it will be seen that in use it has been found that a double bar with a metal top is a necessity to the combination, and that without such a double bar the woven wire cannot be fastened.

This brings the argument back to where it began, namely, that the defendants' exhibits do not disclose any practical way of reducing the tension upon woven wire beds, and in no sense whatever anticipate the Ryan patent.

It is evident that the learned Judge at Circuit decided against the patent after considerable doubt, for he says at folio 187: " It was thought after reading the brief of the complainants' counsel that the patent might be saved because of the peculiar character of the material, and the supposed difficulty of fastening it to the swing bars."

Here again the Court looks at the patent as if it were one for an improvement in canvas or rope beds

and refuses to ascribe merit to it, because of the way in which woven wire had been fastened to the rigid end rails and which he thinks to be substantially similar to that of the Ryan patent.

This objection seems sufficiently answered by what has been said above with reference to the scope of the patent. It is impossible to fasten woven wire to the defendants' exhibits in any practical or permanent way. The use of woven wire and its great advantages were well known at the date of the Bradley and Loomis patents. These inventors would have conceded that woven wire was a better material for a swing bed than rope or canvas. Why, then, did not they use it, if the mode of its use was such as would readily commend itself to a mechanic? I answer that the use of a double clamping bar with a metal top was not obvious. Such a construction was not suggested by the old rigid end rails, and the bad faith of the defendants in making this claim is well illustrated by the testimony of the defendant H. D. Hard, at folio 167, where he swears that the old method of fastening to the rigid end rails at right angles is a better way of fastening than the plaintiffs' way "from the fact that the fabric is turned on an angle, and in the patent in suit the strain is direct."

The defendant seems here to recognize the fact that the horizontal use of wooden end strips would not be practicable; obviously, also, they would make objectionable ridges in the bed. Therefore it would not naturally occur to a mechanic that a mode of construction unsuitable for rigid end bars might be used for an elastic double swinging bar; nor could such construction be used except for the diminished tension produced by the Ryan construction.

There is nothing in the construction, position or use of the rigid end rails of the old structure to suggest the elastic horizontal double clamping bars of the Ryan patent.

Down to the time of the Ryan patent, and although the idea of swinging bed springs was old, and although woven wire had long been regarded as by all means the best material for a bed bottom, no inventor had been able to make a swinging woven wire bed. The substitution of woven wire for the useless and discarded canvas and rope, and the revelation of a novel and practicable way of suspending the woven wire to spiral springs, was invention.

The patent describes and claims the use of a strip of metal for the upper surface of the swinging bar. In practice, it has been found impossible to make a swinging woven wire bed without the use of this metal strip in combination with a lower strip. This claim is ignored by the Circuit Court.

In short, the Ryan patent is not an adaptation of the heavy and cumbersome joint of the old woven wire bed to new circumstances, but is the creation of new and useful circumstances, namely, of a woven wire fabric one foot shorter than in former use, and having a tension 500 pounds less, and of a simple, effective and ingenious means of using this shortened fabric in combination with spiral springs so as to make a better and more durable bed spring than before.

It makes no difference whether this patent is regarded as a patent for an improvement on woven wire beds, or as a substitution of woven wire for the inferior material of other beds, together with the means of adapting woven wire to such new use. In either case the authorities are full and explicit in favor of upholding the plaintiffs' patent.

The patent is itself *prima facie* evidence that the patentee was the first inventor, and casts upon him who denies it the burden of sustaining his denial by proof.

Smith *v.* Goodyear Dental Co., 93 U. S., 486.

The fact that the device has gone into general use and displaced other devices which have previously been employed for analogous uses may be considered upon the question whether the latter device involves a patentable invention.

Id.

Regarding the question as one of substitution of materials, it is clear that the substitution involved a new mode of construction. Therefore it amounted to invention.

Id.

I am not certain but that the defendants' case is weakened by their exhibits of old and unmerchantable canvas and rope beds, for which they claim the plaintiffs' bed is a substitute. I think if any one had been in the habit of using such a canvas or rope bed, and had then had his attention called to the plaintiffs' patent, he would not have been slow to characterize the latter is "a new and useful result, whereby the structure has acquired new functions and useful properties."

Hicks *v.* Kelsey, 18 Wall., 670.
Smith *v.* Goodyear Co., *supra.*

Or, as was said by Jessel, *M. R.*, Hinks *v.* Safety Lighting Co., L. R. 4 Ch. D., p. 16: "As far as I can ascertain from the authorities the merit very much depends on the result produced. Where a slight alteration in a combination turns that which was practically useless before into that which is useful and very important, judges have considered that, though the invention was small, yet the result was so great as fairly to be the subject of a patent, and, as far as a rough test goes, I know no better."

See also

Dalton *v.* Nelson, 13 Blatch., 357.
Merwin on Patents, pp. 499, 500.

The substitution has developed a new use and property of the article formed, namely, the ability to

use woven wire in a bed bottom in shorter sheets than before, and at a much less tension and with better result, and hence cannot be claimed to be a mere substitution.

The patent should be upheld as a claim for a new and useful combination. The rule on this subject was clearly and forcibly stated by Judge Bradley in Webster Loom Co. *v.* Higgins, 105 U. S., 589: "It is argued that a combination is a mere aggregation of old devices already well known, and therefore it is not patentable. This argument would be sound if the combination was an obvious one for attaining the advantages proposed, one which would occur to any mechanic skilled in the art. But it is plain from the evidence and from the very fact that it was not sooner adopted and used that it did not for years occur in this light to even the most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over it, but they certainly failed to see it, to estimate its value and to bring it into notice. * * * We are constrained to say that we cannot yield our assent to the argument that the combination of the different parts or elements for attaining the object in view was so obvious as to merit no title to invention. Now that it has succeeded, it may seem very plain to any one that he could have done as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination produces a new and beneficial result never obtained before, it is evidence of invention."

7.

The defendants are infringers. At folio 29, the plaintiffs proved the sale by the defendants in the

City of New York of the bed bottom marked "Complainants' Exhibit E." This bed is an appropriation of the whole of the Ryan patent (fol. 40). The defendants used woven wire and spiral springs exactly as in the plaintiffs' bed. They used an elastic, horizontal, double clamping bar as described and claimed in the patent. They make both parts of this bar of sheet iron, but this construction is covered by the patent and the use of this double bar was taught them by the patentees and in the beds which they bought of them (fol. 91). The patent does not limit the patentees to the use of wood for their double bar, nor does it limit them to the particular construction whereby the woven wire fabric is fastened to the wooden part "by means of suitable pins or otherwise." The defendants claim that one particular construction shown in the patent of a metal top in combination with an under wooden strip has been abandoned by the plaintiffs. This is not important, but is fully explained by the plaintiff Ryan at folio 43. He testifies that he sold these bed bottoms, having the exact construction described in the patent, "for about one year, and quite extensively, with an increased sale of about 75 to 100 per cent. a month, but some furniture dealers objected to the bottom bar being of wood on account of vermin, so I substituted a metal bar for their benefit, and hooked the ends of a wire around it, as in Complainant's Exhibit E, but the hooked or bent edges of the wire would tear the bedding and present a ragged appearance objectionable to many furniture dealers. This objection suggested a further change to myself and foreman, which is shown in our joint application for a patent." This patent was subsequently granted, and appears at page 63. (The cut illustrating this patent should have been printed after page 62, instead of before page 67.) One of the things covered by this patent is the use of a tongue or small

third bar in between the two metal bars. This was inserted so as to cover up the ragged under ends of the woven wire, but was not necessary in order to secure the web and prevent it from pulling out (fol. 82). This is a mere modification of the first patent. After the plaintiffs were using this modification the defendants purchased some beds of them (fol. 91) and then began their infringement. No doubt was expressed in the Circuit Court but that the defendants were infringers if the original patent was a valid one.

8.

The failure to join the patentee Dunks as one of the parties plaintiff was not objected to either by plea or answer. Therefore it is waived.

Carey *vs.* Brown, 92 U. S., 171.
Story *vs.* Livingston, 13 Pet., 359.

The parties before the Court are all the parties injured by the infringement complained of. They comprise all the parties who are entitled to an accounting as against the defendants. The plaintiff Ryan is one of the original patentees, and has always owned one-half the patent. The other plaintiffs are the owners of exclusive rights obtained from Dunks. The only question which the defendants could have raised is one under the somewhat stringent rule laid down in Waterman *vs.* Mackenzie, 138 U. S., 252, whether the original assignment from Dunks to Elliott and Cougle, at page 59, is sufficiently broad to allow these licensees to sue alone if Dunks had been the owner of the entire patent. It seems to me upon the whole instrument that it is broad enough and that it clearly discloses the completed intention of the grantor to con-

vey his entire interest within the territory named "as fully and entirely as the same would have been held and enjoyed by him." It will be noticed that in this conveyance, Dunks, being only a one-half owner of the patent, could only convey a divided interest. But it is not thought necessary to pursue this subject further, because it must be conceded that the plaintiff Ryan is a proper party plaintiff, and the utmost that the defendants could have claimed was that there was a defect or a misjoinder of parties plaintiff. The practice in the Northern District of New York is based upon the New York Code of Civil Procedure, which declares in Section 488 that if upon the face of the complaint it appears that there is a misjoinder or defect of parties plaintiff or defendant, the defendant may demur. And in Section 498 it declares that if these objections do not appear upon the face of the complaint, the objection may be taken by answer. And in Section 499 it declares that if such an objection is not taken either by demurrer or answer, the defendant is deemed to have waived it. This practice is thought to be in exact accordance with the equity practice of the Supreme Court, and is in the aid of substantial justice. The defendants are in nowise prejudiced by the failure to join patentee Dunks as a party in this action, and if they had raised this objection by plea or an answer, the plaintiffs would have amended if there seemed to be any question in the matter.

The decree appealed from should be reversed, with instructions to the Circuit Court to grant to the plaintiffs the relief prayed for in their bill.

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CASE NO. 13,529.

Supreme Court of the United States.

OCTOBER TERM, 1891.

TERM NO. 346.

JAMES B. RYAN, FRANCIS A. HALL, WILLIAM R. CONGLE AND RICHARD W. ELLIOTT.

Appellants,

AGAINST

CHARLES H HARD, JOHN CRAWFORD, AND HENRY D. HARD,

Appellees.

Appeal from the Circuit Court of the United States for the Northern District of New York.

BRIEF FOR THE APPELLEES.

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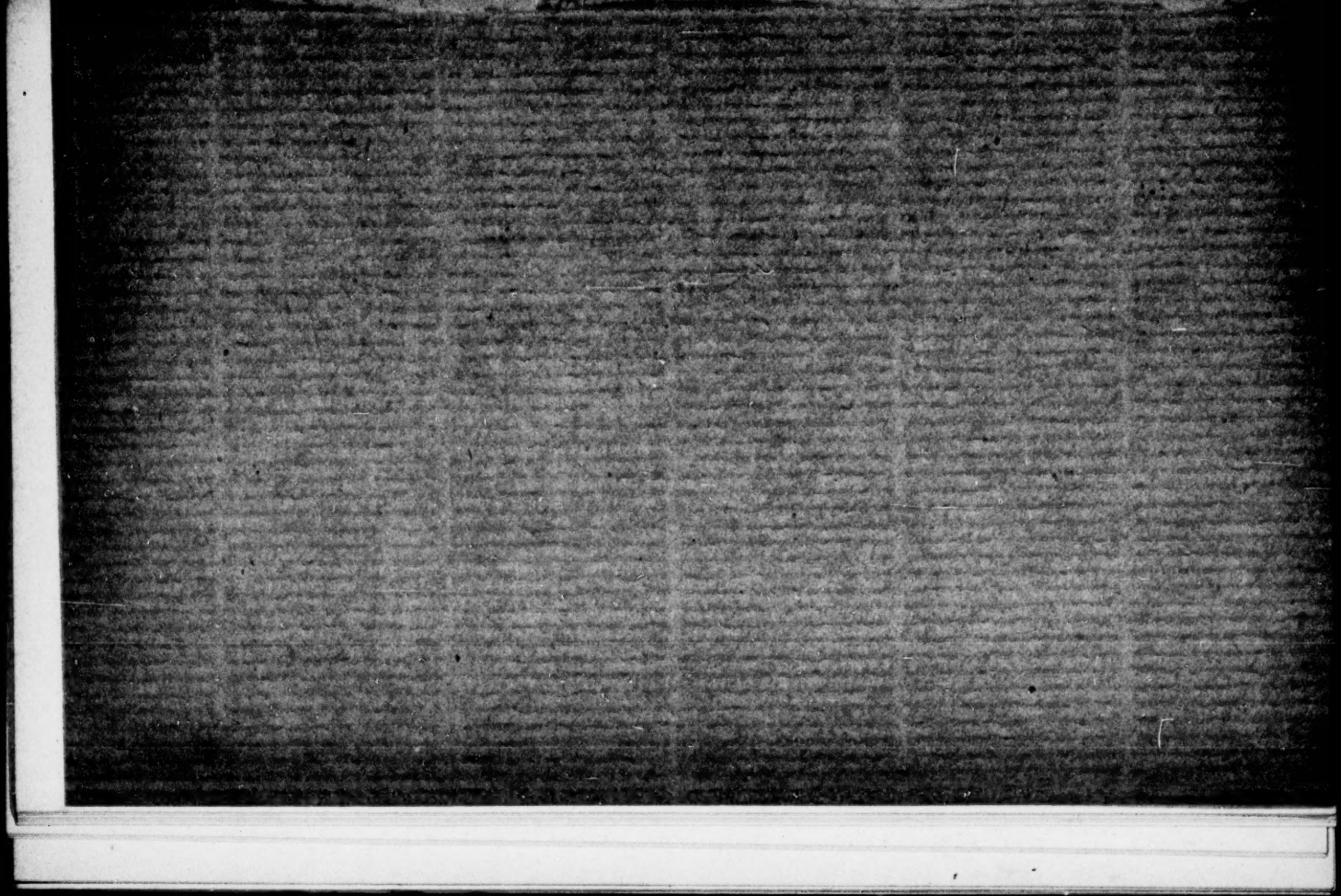

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Appellants.

vs.

CHARLES H. HARD, JOHN CRAWFORD and HENRY D. HARD;
Appellees.

Appeal from the Circuit Court of the United States for the Northern District of New York.

Appellee's Briefs and Points.

This is an equity action founded upon letters patent No. 241,321, granted to C. H. Dunks and J. B. Ryan, May 10, 1881, for an improvement in "Swing woven wire bed bottom," so called.

The essential feature of the alleged invention is a "Swinging cross-bar," to which is attached the wo-

ven wire bed bottom, which is in turn suspended by helical springs, from the end rails of the bedstead.

The patent does not cover the fabric, nor the helical springs; the woven wire fabric and the helical springs (it is admitted) had been in common use for twenty years or more. Rec. p. 23, A. 35, P. 87, A. 13, p. 38, x a. 146–142, p. 40 x a. 162. 163.

It is admitted also that the only claim to invention is for a "Swing cross-bar," made of two bars of wood, or one bar of wood and one of iron.

Rec. p. 40, a. 159, 163.

Second. It is admitted also that complainant's alleged invention—Exhibit A—consists of two wooden bars, or the *underlging bar must be of wood*, (and of sufficient weight to receive nails, or "suitable pins,") and of the shape described, (Rec. p. 67, Fg. 3, p. 69.) The woven fabric must be secured to the underlying bar *by means of "suitable pins," yoked nails or double pointed nails;* the upper bar of wood or metal, is placed over the ends of the fabric to *cover up the nails and the ends of the fabric*, and the two bars bolted together, with six bolts or rivets. The upper bar of wood, or metal, is supplied with holes, by which the bar is attached to the spiral springs. Rec. p. 86, a. 11. p. 102, a 16. Admitted on p. 40.

This constitutes the alleged invention, a very simple and common mechanical construction, or a device very familiar in carpentry and mechanics. (Rec. p. 101, a 8,) and containing no novelty, or new device.

Third. The alleged infringement by defendants is a construction under letters patent issued to Charles H. Hard, one of the defendants, May 21st, 1884, and No. 318,728, (Rec. p. 111,) and consists, as shown in complainants' Ex. E., of a transverse bar, in a bed

bottom (entirely different in form, shape, size and material,) made in two parts; the upper and lower bars being of solid iron—the upper bar being irregular in shape on one side, with protruding points, supplied with holes, to receive spiral springs; and to which the web is secured, in an entire different manner, and the upper bar is used for an entire different purpose, to-wit:—the fabric is placed between the two iron bars, with the ends protruding one inch or more, when it is bent over the edge of and underneath the lower bar, forming a hook, which secures it firmly, and prevents it from pulling out; these bars are then firmly riveted together.

Fourth. The appellants did not upon the trial furnish us with an exhibit, showing us the mechanical construction of his bed bottom, nor any other structure from which can be seen the *novelty* and *new thing* claimed in his alleged invention. But he satisfies himself by saying that defendant's structure, Complainant's Ex. E., shows an infringement of his alleged invention, as stated in his letters, Ex. A., with no model or structure produced for comparison with complainant's Ex. E. Yet on the argument they produced in court a bed bottom, claiming that it represented their patent, which had not been introduced in evidence on the trial.

Fifth. There was a vast amount of speculative and incompetent evidence, offered by complainants, and taken by the notary, which was objected to; and notice given for motion to strike out, &c. By not calling the court's attention specifically to these objections, (as it would consume much time so to do,) counsel for appellees do not desire to be understood as waiving them.

Sixth. The patentees are C. H. Dunks and J. B. Ryan, (Rec. p. 67.) One of the patentees, Dunks, gave complainant's, Elliott and Congle, a license to manufacture and sell the patented article in the Middle and Eastern States. (Rec. 59.)

2d. Elliott and Congle transferred their interest in said license to complainant Hall, reserving the right to manufacture the article in the City of New York, and to sell through said territory. (Rec. p. 60.)

3d. Also at the time of the commencement of this suit, complainant, Ryan, had a partner, one Joseph H. Ryan, in the manufacture and sale of this patented article, and who was entitled to a one-third interest therein. (Rec. p. 32 and 33, a. 91, 94, 95, 96.)

4th. Ryan was not associated in business with either of the other complainants. (Rec. p. 33, a. 97.)

5th. Also complainant, Ryan, had transferred an interest in said patent to Newalt & Dreyfas, for the Southern States. (Rec. p. 33, a. 98.) This non-joinder and mis-joinder of parties complaint were not known to defendants until after the pleadings were filed and the evidence taken. The question was raised in time in the court below. (Rec. p. 14, 15, 34, 4 x. a. 103.)

DEFENCES.

1.

There is a non-joinder of parties complaint.

First. Joseph H. Ryan was a partner of complainant, Ryan, having a one-third interest in the manufacture and sale of said patented article, at the time, and prior and subsequent to the commence-

ment of this suit. (Rec. p 32, 33, a. 91, 92, 95, 96.)

2d. C. H. Dunks is one of the patentees, equally interest with Ryan, who made no claim to Dunks' undivided one-half. (Rec. 31 & 2 a. 90.) Nor had Dunks made an absolute sale of his undivided one-half interest to any one. Rec. p. 34, x a. 103.

The proper objections were made at the first opportunity at the commencement of the trial. (Rec. p. 13, 14, 15.)

The said Dunks., and Joseph H. Ryan have the same right to sue defendants that said James H. Ryan has, while defendants cannot be subjected to separate suits by each one, for the same cause. Therefore they are necessary parties, and a complete determination of the case cannot be had without them.

II.

Mis-Joinder.

There is a mis joinder of complaints: Francis A. Hall, William R. Congle and Richard W. Elliott should not have been joined as complainants.

1st. Dunks, who owned an undivided one half of said patent without the consent of his joint patentee, gave Elliott and Congle a "license" to manufacture and sell the patented article. Could he convey or grant a *valid license*, independent of his joint patentee? And yet if he possessed that right he gave a *license* only and no power to sue others. Under such a license the power to sue for infringement of the original patent was not conveyed and did not exist in Elliott and Congle. Dunks retained the absolnte title. Rice 1 Boss., 46 Fed. Rep. 195.

2d. What right had Elliott and Congle to convey to Hall a *personal license* granted them by Dunks?

Certainly they could not convey the right to Hall to sue defendants for infringement of a patent, the title to which was retained by Dunks? (Rec. 59, 60.)

If defendants were liable to any one they must answer to Dunks and Ryan jointly; if not to Dunks, Ryan and Joseph H. Ryan jointly.

Therefore Elliott, Congle and Hall are not proper parties. A *license* to manufacture and sell gives them no power to sue us for damages.

The proper objections were raised in time. (Rec. p. 13, 14, 15.)

Nor were the complainants partners. They were all engaged in separate businesses, and no *joint* interest exists among them. (Rec. 34 a. 101, 102.)

III.

A Prima Facie Case was not made out.

Complainant introduced in evidence the following and then rested.

1st. Complainants Ex. "A" is the patent in suit under which they claim. (Rec. p. 13, 67.)

2d. Complainants Ex. B. is a *license* from Dunks to Hall and Congle, to manufacture and sell the patented article in the Middle and Eastern States. (Rec 13, 59.)

3d. Complainants Ex. C, is a conveyance by Hall and Congle of an undivided interest in said license to manufacture and sell in the same territory, reserving to themselves the right to manufacture and sell. (Rec. p. 14, 60.)

4th. Complainants Ex. D, is a bill, of Hard Bros. & Co., dated February 25, 1887. for a bed bottom

5th. Complainants Ex. E. being a bed bottom

mentioned in the bill, Ex. D. (Rec. p. 15, 62.)

This is the only evidence offered by the complainants before resting.

A—.There was no evidence to show that Elliott and Congle had anything but a mere *license* to manufacture and sell. And that license was granted by only *one* of the two patentees. They had no license from Ryan, the other patentee. The *license* gave them no authority to institute legal proceedings against defendants.

B.—The license granted Elliott and Congle by Dunks, one of the patentees, gave them no authority to convey a license to Hall to manufacture and sell in the same territory, and especially while they retained the same right.

C.—Dunks was a joint patentee and owner. He was not joined as complainant.

Therefore the complaint should be dismissed as to all the complainants. The objections on p. 14 and 15 were well taken.

D.—The bed bottom introduced as Complainants Ex. E. was not identified nor shown to infringe Ex. A. There was no evidence on that point.

E.—Complainants did not produce, nor put in evidence any structure showing or representing the cross bar on the bed bottom covered by complainant's patent. If he had done so it would be seen at a glance that the wooden cross bar described in the specifications (Rec. p. 67) of the Dunks and Ryan patent, and the defendants' structure, Complainants' Ex. E., are not identical in *form*, *material*, *office* or *construction*.

F.—No evidence of an infringement was produced.

G.—Complainants introduced their Ex. E. simply to show that they purchashed it of defendants.

H.—The court must assume the position of a witness to examine complainants' Ex. E. and Ex. A., and say whether or not the former is an infringement on the latter, and then pronounce judgment on i t own evidence. Whether the one is an infringement on the other is a matter of proof. And the proof is overwhelmingly against complainants' claim.

IV.

Complainants' and Defendants' Swing Bars not Identical.

Camplainants alleged "Transverse vibrating swinging bar," described in the specifications and letters patent in suit, and defendants' structure, Complainants' Ex. E., are not identical in device, mechanical structure, material, mode of securing the web, the operation or utility. Rec. 102, a. 16, p. 85 a. 7, p. 86 a. 11.

1st. Complainants' patent relates to the "swin g bar in a bed bottom." (p. 37 a. 138.) The claim is (Rec. 69) "an intermediate connecting transverse bar, provided upon one edge with a *throat* adopted to receive the ends of a wire, and upon the opposite side with *means* for attaching the *links* or springs"—a "flexible vibrating swing bar." (Rec. p. 38, a. x. 139, 140, p. 45 x. a. 199.)

It is constructed as follows: (See Fig. 3, page 66 to 67, & p. 67) "We construct the swinging bar in two parts—a lower portion D, *formed of wood*, to which one end of the woven fabric is secured by means of suitable *pins*, and an upper portion D, provided upon the outer edge with a series of

holds, *d*, the upper and lower portion being secured to each other by rivets, bolts or other analogous devices. The upper part may be made to assist in securing the ends of the woven fabric, to *cover* the *ends* of the *fabric*, and thus protect the mattress from undue wear;" "the result being obtained (p. 68 and 9) by the employment of a strip of metal for one (upper) part of the bar DD; but we do not wish to be limited to the use of *metal* for that purpose. One advantage which is due to the *use of wood* for this bar is the fact of its *yielding* and *elastic* nature permits attachment of the spring wire of which the fabric C is formed, and the *vibrations* of the bar when in use, without breaking the attached ends." In other words it is a bar composed of "two wooden, vibrating elastic bars," riveted together after the web has been nailed to the face of the lower wooden bar; the upper bar has holes in its outer edge to receive the helical springs, and serves two purposes, i. e., to "cover the ends of the wire so that it will not injure the mattress." and 2d, "to connect with the helical springs." *This is the whole invention.* The woven wire fabric and the helical springs had been in free and common use for over twenty five years. (p. 38, xa. x 142, 143, 145, 146, 147, p. 47, xa. x 220, p. 86 a. 9, p. 87 a. 13.) Complainant Ryan testified that his "only claim to invention is a *swinging bar in a bed bottom.*" (Rec. p.40, x. a. 159, 161, 162, p. 23 a. 42.)

Again the bed bottom as constructed in Complainant's exhibit A is not practical or serviceable and the bed bottom will pull out when the strain is applied. (Rec. p. 23, a. 37-87, a. 11, p. 85, a. 6, p. 102 a, 13, 14.)

Again: Defendants' cross bar is as follows, to wit: It is a transverse bar in a bed bottom, made in two parts; the upper and lower bars are of inflexible, unyielding *solid iron;* the upper being one inch wide, No. 18 guage iron, and the lower five eighths of an inch No. 12 iron gauge; the upper bar being irregular in shape on one side, with protruding points supplied with cavaties or holes; the wire web is placed on the lower bar so that its ends will extend 1½ inches over the bar; the upper bar is placed on the web, directly over the under bar to keep the web in its place; it is firmly secured to it by iron rivets; the ends of the wire web are then bent over the edge of the lower bar and underneath it, *forming a hook*, thus securing it firmly, and preventing it from pulling out when the strain is applied to the bed bottom. The web being thus secured the spiral springs are hooked in the holes in the upper bar, which in turn are attached to the end bar of the bed stead.

This mechanical construction differs from complainant's said bar in this, to wit:

1. Complainants' bar is made of two wooden bars the lower bar being necessarily of wood, and of sufficient size and thickness to permit the web to be nailed to it without splitting. The defendants' bar is necessarily of solid iron, and of No. 12 and No. 18 gauge iron. (Rec. 86 a. 11, p. 67.)

2. The complainants are compelled to secure the wire fabric to the wooden underlying bar by means of pins, nails or double headed tacks.

The defendants are compelled to secure the wire fabric to the underlying part of their swing bar by bending the wire web down and under, forming a hook by which the web is permanently secured.

3. The upper bar of the complainants' swing bar is made to cover the rough ends of the wire web, which lies in a horizontal plane, and the heads of the pins, nails or double-headed tacks, so as to protect the mattress and bedding from being worn.

The defendants' bar is not required or used for any such purpose; no nails are used, and no rough ends of wire are "on a horizontal plane," but are turned under the lower bar and away from the bedding, and used to keep the web and hook in their place. (Rec p. 86 a 1.)

4. The complainants' bar of wood is constructed to be an "*elastic, vibrating* bar." (Rec. p. 28 x a x 139, 140, p. 45 x a. x 199.) "A *yielding* and elastic vibrating bar," (Rec. 69) and the "upper bar adopted to protect the mattress from contact with the ends of the wire." (Rec. p. 69, claim.)

The defendants' bar is not, nor is it intended to be, an elastic bar. It is oscillatory with the bed bottom, but only so as the bed bottom moves it to and fro, being a rigid part thereof. The bar is rigid and inflexible, having no compression or dilatation of parts.

5. The complainants' bar is made of two strips of wood, or one necessarily of wood.

6. The defendants' bar is made of a different material and necessarily of solid iron. (Rec. p. 86 a 11.)

7. The web in Complainants' patent is secured by nailing it to the underlying wooden bar. Defendants' web is secured to the bottom iron bar by forming a hook around it with the wire web.

8. Complainants admit (we have seen) that their web pulls out, and is not practical, and having found that defendants' bar is the best they have adopted it.

(Rec. p. 85 a. 5, p. 23 a 37, p. 87 a. 11, p. 35 x a. 115.)

9. Defendants' bar is practical, useful, durable, serviceable and firmly secures the web, performing its office perfectly, securing the web to the bar and the bar to the springs, and the springs to the cross-bar of the bedstead. (Rec. p. 34, x a. 106, 107, 108 to 116 inclusive.)

10 Complainants claim that their "flexible bar is the only swinging bar that holds the wire on a smooth, level plane *without hooking* or *bending around* something." (Rec. p. 18, a. 16. First and third reasons p. 19.) This they regard as the *main feature* of their invention, and most strongly empha sized in their evidence.

11. Thus we have seen, and the oral evidence clearly shows :

A —That defendants' transverse bar is entirely different in device, structure, material, operation, utility, form, shape and size.

B.—That defendants' bar is practical, useful and durable, performing its office perfectly, holding the web in its place, while complainants' is not useful, practical or durable, for which reason they practically abandoned their device and adopted defendants'. (Rec. p. 23, a. 37, p. 34, x a. 106, 107, 108 to 116 inclusive, p 87, a. 11, p. 35, x a. 118, p. 102 a. 13, 14, 15.)

B.—The difference in the bars is a material and important one, and does affect the substance of the invention, as described in patent in suit. They differ in their mechanical device and construction. (Rec. p. 87, a. 15, p. 96, X a. 59, p. 96, X. a. 62, 63, 64, p. 102, a. 13, 14, 15, 16, 20.)

C.—Complainants' case rests on the evidence of Ryan, who was shown to be untruthful and unscrupulous by his numerous contradictions on the trial, Some of his contradictions are as follows:

His answer 19 is contradicted by his X. a. 260, 254.

His answer 17 is contradicted by his X. a. 246, 244, 245.

His answer 11 is contradicted by his X. a. 225, 245.

His answer 5 and 7 is contradicted by his X. a. 227.

His answer 19 is contradicted by his X. a. 254.

His answer 27 is contradicted by his X. a. 269.

In reference to his answers as to defendants' exhibits, A, B, C, he contradicted on cross-examination by X. a. a. 262, 264, 265, 266, 267 what he testified to on direct; and in reference to the difference between the patent in suit, and complainants' ex. E., Direct a. 28, x. a. 269. Also he contradicted his direct answers 58, 59, 60, 61, by X. a. 570, 271. His evidence is full of contadictions, but the foregoing will show the character of his evidence.

D.—The bar in complainants' exhibit E. is not like complainants' bar in suit. (p. 54, x. a. 269.)

E.—Ryan is contradicted by two witnesses on the part of defendants on every material point; by Charles H. Hard, a skilled mechanic, expert and inventor, and by Henry D. Hard, a skilled mechanic and inventor.

The defendants have the clear weight of evidence. Complainant Ryan is not sustained.

F.—Complainant Ryan testified at length to show the superiority of his alleged invention over defendants' exhibits A, B, C, & D. Yet on his cross examination he was forced to testify that he knew nothing whatever about either of them. (Rec. p. 42, x. a. 176.

See his x. a. 240, 246, 247, 249, 250, 252, 254, 257,134, 223, 224, 225.)

G.—Complainant Ryan admits that defendants' exhibit "Dunks and Ryan swing bar" is substantially like the one described in complainants' exhibit A. (p. 40, x. a. 164, p. 90, a 24.) It is a model of their bar.

H.—Defendants' exhibits are correct, viz:

1. Two iron bars. (Rec. p. 91, a. 25.)
2. Two wooded bars. (p. 91, a. 26.)
3. Three iron bars. (p. 90, a. 23, 24, 25.)
4. Defendants' Dunks and Ryan bar. P. 40 x. a. a. 154, 165.

It is clearly established that defendants' structure "Two iron bars" is not identical with, nor an infringement on complainants' patent in suit.

V.

Abandonment.

Dunks & Ryan almost immediately abandoned their said invention as useless and impractical. (Rec. p. 54, x. a. 276, p. 34, x. a. 107, 108, 115, p. 23, a. 37, p. 85, a. 6, 11, p. 102, a. 13, 16.)

A.—Complainant Ryan testified that he had trouble with the bar, and many mattresses were returned by different dealers. (Rec. p. 23, a. 37.)

B.—That the web pulled out, and they were obliged to use three bars, (one top of the other) and to wind the web around the middle bar to keep the web from drawing out, and he applied to the patent office for a patent on a new device to correct the difficulty complained of. (Rec. p. 24, ans. 41, p. 35, x. a. 115, also p. 49, x. a. 238. Application for improvement, p. 63.)

C.—Complainants do not know how many they have made in the last seven years like the one in the patent, "Not but a few." He thinks three or four dozen within a year, or six hundred all told. (Rec. p. 34, x. a. 108, 109, 111.)

D.—The complaints came in after introducing it within two months. (Rec. p. 37, x. a. 133.)

After the complaints came in, and within two months he commenced experimenting and sought to correct the difficulty by abandoning this and getting up a new thing, and applying for a patent therefor. (Rec. p. 35, x. a. 113.)

He sought relief in the *three* iron bars. (id. x. aa. 115, 116.)

He made a different kind "mostly" after the complainants' (id., x. a. 116.) exhibit E, defendants structure.

E.—He made 25,000 bed bottoms annually, but only a few under this patent. (id. x. a. 118.)

F.—When asked why he used three bars he equivocates and dodges the question by saying, "to supply and comply with the wants of dealers. (id. p. 45, x. a. 235, p 24 a. 41.) And when asked why he wound the wed around the third bar he answers, "to cover up the ends of the wire." (id. x. a. 236, also p. 24 a. 41.)

G.—This witness does not admit in plain language that he abandoned his patent in suit. But we submit that no other fair construction can be placed on his evidence.

Defendants show that the bar in suit was abandoned and was utterly useless and impractical.

H.—Chas. H. Hard testifies that he knew of the disuse of this bar, and "the cause which induced it

was that the necessary weight upon the web pulled out the ends of it from the bar," and he states fully why and how, &c. (Rec. p. 85, a. 6.)

I.—That "the structure is not safe or practical." Same answer.

J.—That the remedy of three bars formed a different structure. (id. a. 7.)

K.—Another witness testifies that he is familiar with complainants' bed bottom in suit. That the alleged invention is not practical. "That the wooden bar is not strong enough for a *base*, to which the fabric can be secured without its pulling out or giving away, and rendering the structure unavailing and valueless." (id. p. 87, a. 13 and 14.)

That complainants tried to render it useful by making it in *three* bars.

It is respectfully submitted that complainants practically abandoned their device, commenced experimenting to find a new and better one. That it was never perfected, but abandoned after the new application to the patent office was made in January, 1882.

VI.

Complainants' Patent Anticipated.

First—The alleged invention in suit is fully anticipated by various patents introduced by defendants.

Second—And apparatus substantially identical with it in character and principle had been in use and were previously known more than 15 years prior to the filing of the application upon which said patent was issued.

First—A.—It is admitted that the patent in suit

does not cover the woven wire web, nor the helical springs, but the connecting bar only.

Complainants' evidence Rec. p. 37, x. a., 138, 139, 142, 146, 158, 162, 163, 220, 225.

Defendants' evidence Rec. p. 85, a. 8, 9, p. 87, a 13, 14, p. 102, a. 17.

B.—Directing the Court's attention to defendants' patent—exhibits A, B, C & D. We allude first to the defendants' witnesses. (Rec. p. 83 & 100.)

1st. *Charles H. Hard*, a witness for defendants, is an inventor, and an expert of rare ability; a practical mechanic of large and varied experience; he has personally made all kinds of bed bottoms, and has investigated the art in this and in foreign lands. He stands at the head of the largest spring bed manufactory in this country; is familiar with their construction and operation, and has compared one with another with a view of determining their similarity and utility, &c.; p. 83, and

2nd. *Henry D. Hard* has had a similar experience as a mechanic, manufacturer, &c. (Rec p. 10.)

C.—It will be seen by defendants' patent exhibit A. granted to F. Shimming, April 10, 1866, No. 53,-888, and by reference to the figures, drawings and specifications, that it has two "swing bars," and intermediate connecting transverse bar, which office is to connect the web, or bed bottom, with the springs, and to increase its elasticity and springiness." (Rec. pp, 105, 106.)

The sole office of "the transverse bar is to connect the web with the springs," as in patent in suit. The bar is used because the hooking of the springs into the web would render it less secure and more liable

to pull out. Indeed it would be impossible to secure woven wire to the helical springs or other web without a connecting bar, as the wire or web would easily pull out. Hence the connecting bar has been used ever since the helical springs were introduced, some thirty or more years ago. (Rec. x. aa, 145, 146, p. 38.)

Complainant Ryan is forced to admit that this patent, (Defendants' exhibit A,), as well as Defendants' exhibit B and C, patented April 10, 1866, Feb. 11, 1868 and March 22, 1870, have the same helical springs, and swing bars and that the "swing bars" are placed between the helical springs and the web. Here he admits the "swing bars" perform in the bed bottom the *same office* as in their own, to wit: "Intermediate connecting swing bars." (Rec. p. 39, x. a. 150, 151, 152, 154, 155, 156.)

Here is a most substantial admission of the defense, which goes to the foundation of complainants' action.

In this connection Charles H. Hard, for the defense, testified that he had investigated the state of the art. Referring to defendants' exhibit A, p. 105, he says, "there are three transverse bars, that C, C, is a 'swing bar' which cross or swing bar performes the same office that the swing bar in suit performs," and "that the same principle is identical with the swing bar in suit." (Rec. p 88, a. 18, p. 89, p. 91, a. 26, p. 101, a. 11.)

This evidence was uncontradicted by the complanants.

Turning to Fig. 2, p. 105, and the specifications, it is seen in the drawing, Fig. 2, that the web is fastened to the swing rods or bars B, B, upon the one side,

and the straps C, C, on the other side, substantially as in the patent suit. The straps are connected at their other end with a second swing, transverse connecting rod or bar, C, C, which bar is connected with the bars D, D, by means of wire E, wound around it. The two transverse connecting swing bars are connected with the end spiral springs, AA, which "add to its elasticity and springiness."

Witness Charles H. Hard, testifies that "the specific word 'swing' is not used in any of the patents." Each inventor gives his bar a name. The word "swing" is peculiar to the patentees in the patent in suit. The words "movable bar" are used by Loomis in his patent, (p. 108) instead of "swinging bar." (Rec. p. 99, a. 84.)

Henry D. Hard, (an expert and practical mechanic,) testified that the bars were used ten years prior to the 10th of May, 1881, (date of Dunks & Ryan patent,) in defendants' exhibits A, B, C, and D, and that while there is a slight difference in the mechanical construction, including the bar in suit, there is no difference in their principle or operation. (Rec. p. 101, a. 10, 11, 12.)

D.—It will be seen by defendants' patent, Exhibit "B," a patent granted to Stanley Bradley, for spring bottoms, Feb. 11, 1868, No. 74,293, by reference to the drawings and specifications at p. 106, 107, Rec., that it has a "swing bar," or "transverse connecting vibrating bar," whose office is to connect the web with the helical springs, and "to accelerate the elasticity and springiness of the bed bottom."

The "spring bars" in this exhibit are designated as "cross bars," to which is attached on the one side

the bed cords or the web, by means of loops or hooks and attaching the cross bars to the end rails, by means of spiral springs." The "cords and bars may, as a whole, be pressed down." "Thus the two will increase the ease of the bed by the doubly yielding operation while guided by the bars." (Defendants' Rec. p. 59.)

The claim is identical with the claim in the patent in suit. The claim in the patent in suit is, "in a bed bottom, the combination with an end rail, of the links or springs, the section of woven wire fabric and an intermediate connecting transverse bar." (Rec. p. 67.)

The claim in Bradley patent is, "the combination of the spiral springs with the two bars L and M, and the cord K, the web, &c. (Rec. p. 106.) Of the latter the spiral springs are hooked into the eyes or hooks with which the spring bar is provided. On the opposite side of the two bars the web is secured in eyes or hooks.

The bar in suit is fastened on one side by the same and on the other the web is nailed to the wooden bar, instead of fastened in eyes or hooks. This is the only difference, which is *not* material.

The Bradley patent and specifications further say, of the wood end spring bars: "The bars L and M will steady all the parts, and thereby give the greatest ease and evenness to the operation of the bed bottom." (Rec. p. 107.)

2. Complainant Ryan testifies in reference to this bar in defendants' Exhibit B. "The web in defendants' Exhibit B, is connected with the swing bar by means," &c. (Rec. p. 39, x. a. 157.)

"That the bars mentioned in Defendants' exhibit

B, and in the bed bottom in suit, may both be called and are in fact swing bars." (Same, x. a. 158.) That his claims to invention is a swing bar in a bed bottom. "An intermediate connecting transverse bar between the woven wire and the helical springs." (Same, p. 40, x. a. 159.)

That in defendants' patent exhibits, B, C and D, he admits, "that helical springs are used to connect the fabric with the rigid end bars," (x. a. 150.)

That he " finds in Defendants' exhibits A, B and C, swing bars between the helical springs and the web." (Rec. p 39, x. a. 151, 154, 155.) That the only difference in securing the helical springs to the bar between Complainants' exhibit A, and Defendants' exhibit B, is in the one the helical springs are hooked into the holes or loop holes. (Rec. p. 39, x a. 156.)

There is no material difference in securing the web. (Rec. p. 39, xx a. 157, 158, 159) Ryan also testifies that his patent is on the bar. (Same p. xx a. 138, p. 40, 159, 162, 163, p. 47, x a. 220, 225.) He defines the meaning of a "swinging woven wire bar" "to be a vibrating bar suspended to and from something." (Rec. p. 38, x. a. 139, p. 45, x. a. 199.)

That the woven wire fabric such as used by complainants had been in common use many years prior to the date of their patent. (p. 38, xx. a. 142, 143, 268.) And that the helical springs such as used by complainants had been in use many years prior to the said patent, (xx. a. 145, 146) and that the same spring was used years before, in Defendants' exhibits A, B and C. (id. x. a. 150.) Also that the said bar used in defendants' exhibits A, B and C, were swing-

ing bars. (id. a. 152, 154, 155, 156.) He also shows that the office of the bar in complainants' patent and its operation is to "swing woven wire from end springs." (id. p. 45, x. a. 199, p. 49, x. a. 232, 233.) The specifications in complainants' patent describe one wooden bar, reserving the right to use two bars, one of which he prefers to be a metalic bar. (id, x. a. 234.) He also used three bars because he could not make two bars work. (id. p. 58, x. a. 235.) Complainants thus subtantially admit this defence.

Defendants show by most positive and reliable evidence in reference to Defendants' patent, exhibit B, that it bears directly on this case; shows a swing bar at either end of the web, suspended by helical springs.' The principle in this and the bed bottom in suit are the same. (Rec. p. 88, 89, 101 a. 11.)

Mr. Hard testified that he has examined the patent in suit and understands it. He states the construction of the bed bottom there described. (Rec. p. 84, a. 3.) That the patent is on a swing bar only. (p. 85, a. 8.) That the patent does not cover the springs, nor the web, which were in common use 15 years or more before the date of complainants' patent. (p. 86, a. 9, 12, 13 and 14.) The evidence of Henry D. Hard corroborates that of the other witness. (Rec. p. 101.)

E.—It will be seen by Defendants' patent exhibit C, granted to G. W. Loomis for a bed bottom, March 22, 1870, No. 101,029 by reference to the drawings and specifications, at p. 108 of defendants' record, that it has an "intervening, vibrating, connecting swing bar." The office of which is the same as the one in suit, to connect the web with the helical springs.

Turning to the drawings and specifications (Rec. p. 108) we find the bed bottom has a web of canvass, an intervening connecting bar and helical springs. The web of "canvass fastened at both ends of the wooden swing cross bars, BB, which are attached to helical springs on the opposite side. The claim is "the combination and arrangement described, of the canvass A, bars BB, springs D, movable bat E, and cord I." (Rec. p. 108.)

The claim in suit is "the combination with an end rail, of the links or springs the section of woven wire fabric, and an intermediate transverse bar," &c. The specifications are substantially the same, and there is no substantial difference. By transposing the language of the one it would read substantially like the other. In exhibit C we have the combination of the web, the "swing" or "movable bar" and the "spiral springs;" and that is all there is of it in the bar in suit.

2. The complainants make the same admission as to this patent exhibit, as to exhibits A. and B, *admitting the "swing bar" and "helical springs."* (Rec. p. 39, x a. 150, 151, 156, 158, 159, 173, 175, &c.)

3. The defendants show that the bed bottom in this patent exhibit has a "web," a "transverse connecting bar," and the "helical springs."

That it has a swing bar BB. The spiral springs D, and the web canvass A. That the inventor calls it a "movable bar," and that there is no difference between the "movable bar" and complainants "swing bar" in *principle* or the *office* it performs. Defendants' Rec. p. 88, 89, 91 a. 20.

F.—It will be seen by Defendants' patent exhibit

D, granted to A. Turnbull and R. L. Webb for bed bottoms, re issued March 4, 1873, No. 5,312, that it has the helical springs, and a succession of "swing bars." Defendants' Rec. p. 108, 9, see Fig. 3. p. 108, 109.

The inventor is pleased to call them a "succession of joint rods," "connected by rings," also "transverse bars." The same principle is involved in this as in the bed bottom in suit. (Defendants' Rec. p. 88, 101.)

2. The defendants show that this bed bottom is "constructed of sectional bars suspended by helical springs." (See p. 89.)

3. The defendants show that complainants letters patent, drawings and specifications do not comprehend or cover, as the substance of the invention anything more than the "swing bars." (Defendants' Rec. p. 89, a. 19.)

G.—That there is no difference in the five patents (Complainants' exhibit A, and Defendants' A, B, C, D,) in reference to the "swing bar" in principle, but they are *identical* in that regard, in their use and operation. That the only difference is in the manner of securing or attaching the different webs or fabrics, which in no wise changes the principle involved either in their use, office or operation. There is no difference so far as the "swing bar" is concerned. (Defendants' Rec. p 89, a. 19, 20, p. 99, x. a. 84, p. 101, a. 11.)

H.—"The difference in securing the web to the bar is not material or important as matter of invention, as contra distinguished from matter of mere mechanical construction. These methods are common and well known in mechanics and carpentry, and it is merely a matter of choice as to the precise shape of

the "swing bar," or the manner of attaching the web to it. They are essentially the same thing as a mechanical devise. That the swing bars in defendants' exhibits, A, B, C, and D, are substantially the swing bars in the patent in suit. They operate in the same manner and produce the same result." (Defendants' (Rec. p. 90, a. 20, 21, p. 99, x. a. 84, p. 101, a. 11, 12.)

It is respectfully submitted that the defence of anticipation by prior patents is thoroughly and positively established.

VII.

The state of the art as disclosed by the undisputed evidence, shows that there is no patentable novelty in the Dunks and Ryan patent.

The essential feature of the alleged invention in the patent in suit, consists in attaching the woven wire fabri c a "swing cross-bar," which in turn is suspended by helical springs from the end rails of the bedstead,

1st.—The alleged invention is confirmed to the *bar* alone. (Rec 85, a. 8, p. 67, p. 37 x. a. 138, 139.)

Complainant Ryan testified: "My claim to the new thing shown in said bed bottom" "is a swinging woven-wire bar as shown and therein combined." (Rec. p. 37, x a. 138.) "I mean a *vibrating bar suspended to and from something* as therein combined." (x. a. 139.) The claim is limited to the bar. He does not claim that the woven wire fabric, nor the helical springs are embraced in his patent. (Complainants' Rec. p. 47, x. a. 220.)

2d—The *woven wire mattress* had been in free and

common use for over 25 years. (Rec. p. 91, a. 26, p. 38, x a. 142, admitted by complainants p. 23, a. 35.)

3d.—The *helical springs* had been in free and common use for a much longer period. (Admitted Rec. p. 38, x a. 146, p. 86, a. 9, p. 87, a. 13, p. 91, a. 26.)

Even the cross bars in a bed bottom had been in free and common use for over 20 years, "to which swinging cross bar the fabric on one side was secured, and which bar in turn was suspended by helical springs from the end rails of the bedstead." (Rec p. 101, a. 9, 10, 11, 12, p. 102, a. 18, p. 84, a. 5, 6, p. 26.)

And in each patented bed bottom it performed the same office, and governed by the same principle, and slightly differed only in their mechanical construction. (Rec. 101, a. 11, 12, p. 88, a. 18, a. x. 33, p. p. 88, 89.)

These facts stand admitted. Rec. p. 38, x. a. 140, 142, 146, p. 39, xa. 150 to 263.

4. "It is a *device neither new or novel.*" Rec. p. 84a. 5 p. 101, a. 8.

"The same device of attaching or fastening woven-wire fabrics to end bars has been used for the last 20 years or more, in the construction of woven wire mattresses." Rec. p. 91, a. 26, p. 101, a. 9, 10, 11.

This evidence is not controverted.

5. The Schimming swing bar had been in use since 1866. Rec. p. 105.

The Bradley swing bar had been in use since 1868. Rec. p. 106.

The Loomis swing bar had been in use since 1870. Rec. p. 108.

The Trumball swing bar has been in use since 1873. Rec. p. 109.

Thus showing it to be an old device. Admitted by the complainants. Rec. 39, xa. 150, 151, 152, 157, 158, p. 52, 53.

6. All complainants did was to substitute a woven-wire fabric in place of woven-cord, canvas, slats or links. And the only way of fastening the web to the bar in the patent in suit is by nailing the web to the wooden bar, and placing a wooden or metalic bar over the ends of the wire to cover them up and prevent them from injuring the mattress. Complainants' evidence, and admission; Rec. p. 49, xa. 236, 237, p. 67, 8, 9.

The fastening of the web to the bar was a simple and well known device in mechanics and carpentry. There was no novelty or new thing in it. Rec. 101, a. 8, 11, p. 91, a. 26.

The difference in securing the web was mechanical and did not involve the use of the inventive, or creative faculty. Rec. 101, a. 7, 9, 11, 12, p. 91, a. 26, p. p. 84, 85.

Judge Blodget says in giving the opinion of the Court in Ames vs. Carlton Spring Bed Co., a parallel case. (24 Fed. Rep. 787.)

"It is true that the fabric shown in the Simmons patent differs from that shown in the Kneppler and Boyinston patent, but after the introduction of the woven wire fabric for bed bottom purposes, there was no possible room for invention in substituting the woven wire fabric in Simmons' device, and when that was done you had exactly, in construction and mode of operation, they Boyinston bed, and all there was of merit in the Kneppler bed."

Judge Coxe, in his opinion in the Court below in the case at bar says: "Every element of the combination covered by their claim was concededly old and well known at the date of the patent." "Is there patentable novelty in the change? It is thought not,—the idea of "swinging a bed bottom was not theirs."—"They have substituted one well known material for another and nothing more." Record p. 114.

We shall see by a single glance at complainants swing-bar, Defts. ex. "Dunks and Ryan swing bar" —Ryan testifying it was correct except the groove or slot in its face, (Rec. p. 40 xaa. 164, 165.) that its construction is a common piece of mechanism requiring no inventive skill. The wire fabric, the swing-bar, and the helical springs performed no new functions.

The precise question, upon parallel facts has been decided by this Court.

Ames vs. Carlton Spring Bed Co., 74, Fed. Rep. 785, 787.

Troy Laundry Mfg. Co vs. Bunnell, 27, Fed. Rep. 810.

Phillips vs. Cockeet, 31, Fed. Rep. 39.

Union Edge Setter Co., vs. Keith, 31, Fed. Rep. 46.

Thompson vs. Smith & Gregg Mfg. Co. 32, Fed. Rep. 791,

Leary vs. Hohenstein, id. 832.

Yoder vs. Mills. 25, " 821.

Florsheim vs. Schilling, 26, id. 256.

2. See distinction between inventive, and mechanical skill.

N. Y. Belting & Packing Co., vs. Magawan, 27 Fed. Rep. 362.

Calkins vs. Oskosh Carriage Co., 27. Fed. Rep. 296.

Butler vs. Steckel, 27, Fed. Rep. 219.

It will be observed also that complainants bar is substantially like defendants exhibit, the wooden bars and the web is fastened to it in the same manner. This had been use for a great many years.

II.

Defendants structure is manifestly superior to complainants swing bar, in material, device, structure and utility. This complainants admit. Therefore complainants authorities, as well as the argument, upon the point of "superior results" may be adopted and cited by defendants here.

As between complainants "swing-bar" and defendants transverse bar, we may also cite with equal force in favor of defendants superior bar, the cases of

Webster Loom Co., vs. Higgins, 105, W. S.

Stephens vs. R. R. Co., 104, W. S.

III.

Complainants urge the point that "when there is doubt as to patentability, success in the market solves in favor of invention."

We have seen that complainants practically abandoned their swing-bar; the web pulled out; and their patrons complained and returned the beds, and then they experimented to avoid the difficulty, they adopted a tripple bar, and finally adopted defendants swing-

bar as the only practical bar; and complainants cite

Hill vs. Sawyer, 31, Fed. Rep. 283.

That case was decided by the judge who decided defendants case in the Court below, and might be cited in defendants favor.

Complainants also cite the following which may be used by defendants as weapons against them.

Wilcox vs. Bookwalter, 31, Fed. Rep. 229.

Hallester vs. Benedict Mfg Co., 113, U. S. 73.

It is clear that complainants swing bar "produced no new and beneficial results," was unreliable, and practically abandoned, for defendants device; that there was no patentable novelty in it, and nothing in it not previously known in mechanics and compentry.

It is respectfully submitted that complainants Bill of Complaints be dismissed, with costs.

JENKINS & DEVEREUX,
Solicitors for Appellees.

JAS. B. JENKINS,
of Counsel.